

# MINING WORLD



*in this issue*  
**NEW PARK IMPROVES  
THE MAYFLOWER**

*Page 12*

**AUGUST, 1951**

Vol. 13 No. 9

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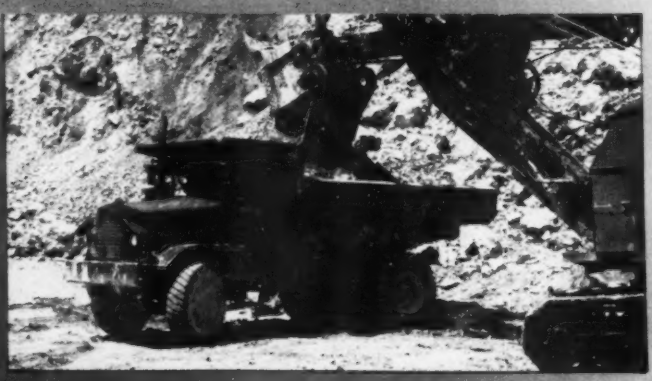
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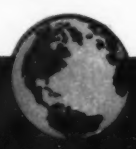
The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO



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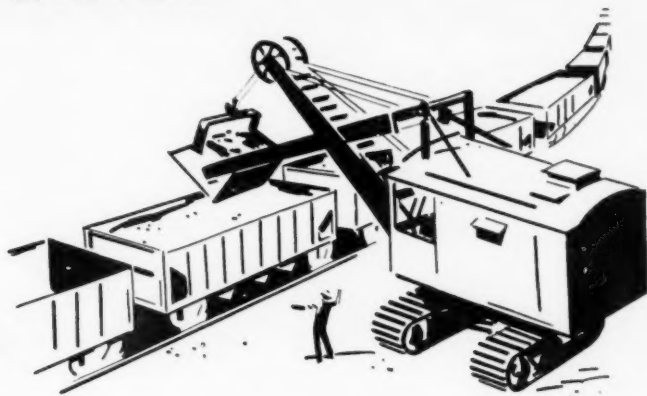
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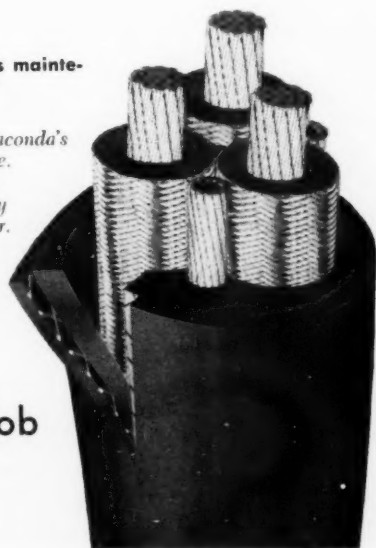
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For exploratory drilling from the surface. Operating at the continuous high speed made possible by bortz bits, the CP No. 15HD DIAMOND CORE DRILL gives exceptional performance with remarkably low maintenance. With E-EX fittings it has a capacity of 2250 feet. The CP No. 8HD has a capacity of 1250 feet.

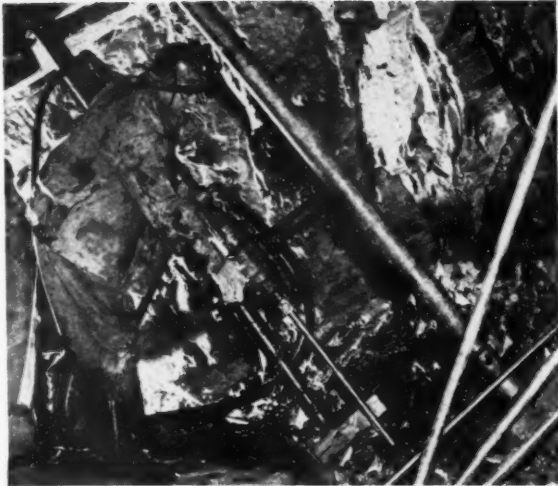
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EXPLORATION  
TO  
PRODUCTION**

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For maximum service from tungsten-carbide bits. The medium-weight, fast-hitting CP-34 STOPER and CP-50N DRIFTER are ideal for securing maximum footage from tungsten-carbide bits, because rotation, drilling speed and foot-pound blow are so balanced that excessive machine vibration is eliminated and long bit life assured.





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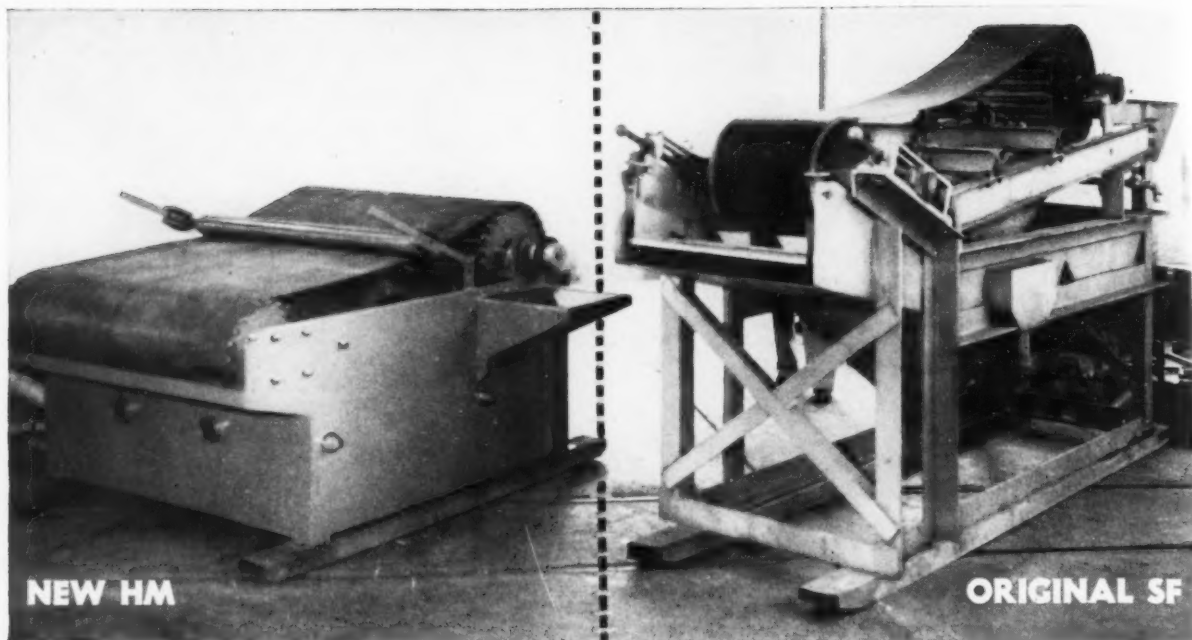
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AUGUST, 1951



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### AIEE Paper on Heavy Media Process Available Free

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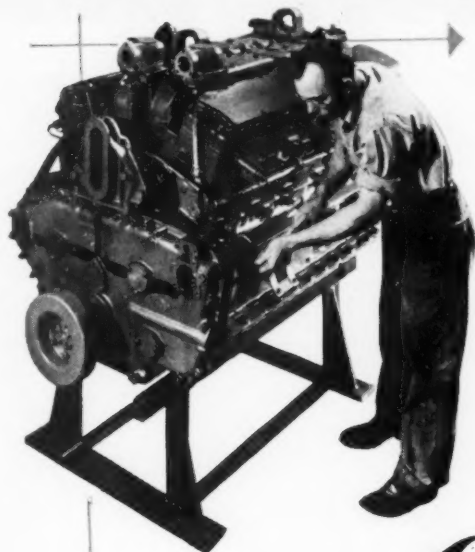
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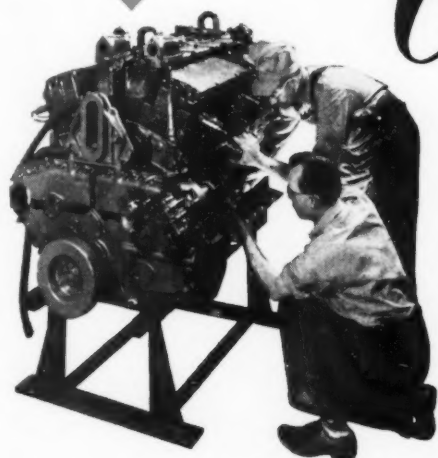
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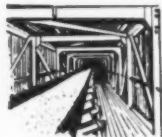
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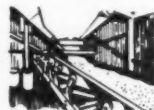


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The sugar you used this morning may well have had a quarter-mile ride on Pioneer Belting. That doesn't make it sweeter—but it makes for a sweet operation at the new million-dollar Lihue bulk loading plant in Hawaii. This new plant is nearly a quarter-mile long, and handles the sugar before refining on the mainland. The conveyor system is so efficient that one man can now load as much sugar as *twenty-one* men load in a conventional plant!

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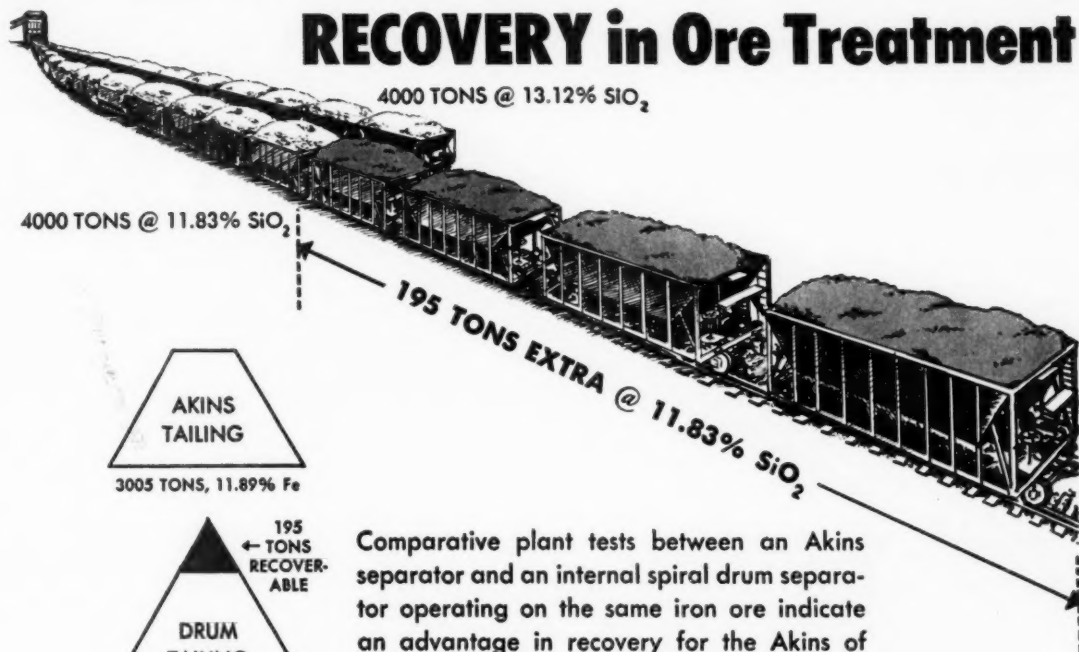


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## reasons for these results

1. The Akins has a much longer and deeper pool, with increased contact and longer residence.
2. Medium and product flow is concurrent in the Akins, which avoids counter-current eddys and promotes recovery of finer sizes of merchantable concentrate.
3. Ability of the Akins to handle surges in feed rate without change in the quality of product.

Send for **HMS Bulletin No. 49**, a primary reference work on **Heavy Media Separation**.



## COLORADO IRON WORKS COMPANY

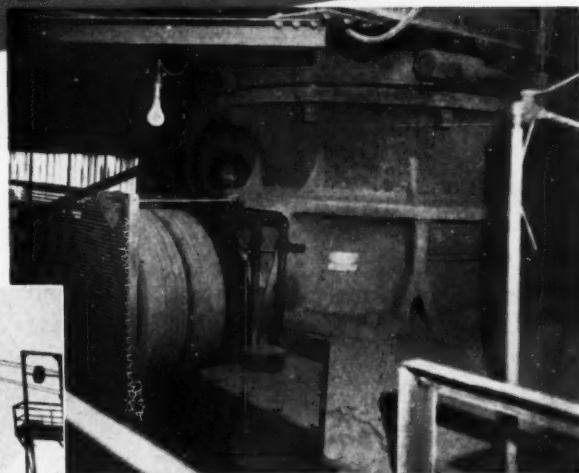
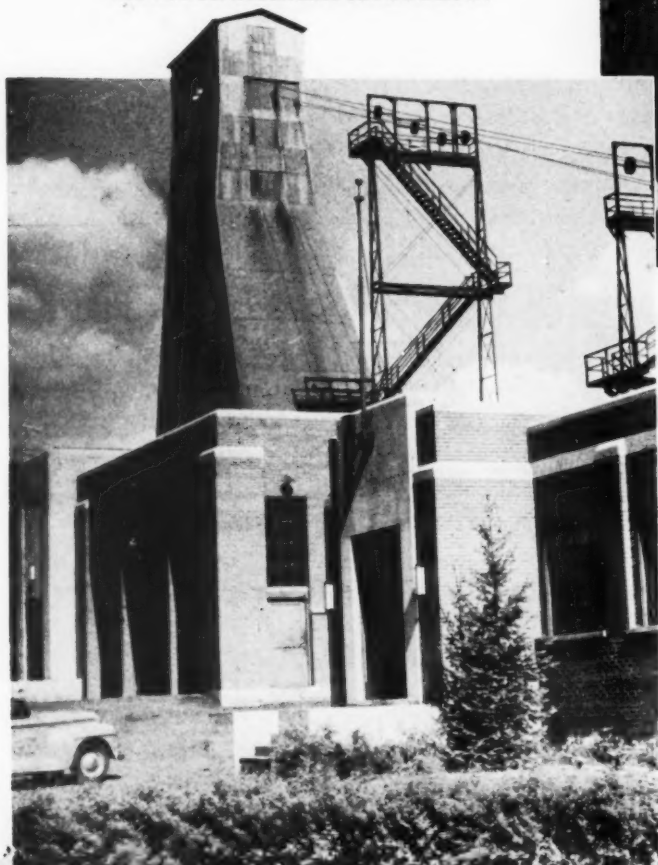
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Installed in 1942, this Telsmith 13-B Crusher handles about 35,000 tons of ore per month, and to date has crushed over 3,000,000 tons. Crusher upkeep expense has been exceedingly low, consisting of only one set of eccentric bearings and some very minor parts. For details on Telsmith's bigger capacity and lower upkeep, get Bulletin 271.

Mn.-34

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# MINING WORLD

and the export edition  
WORLD MINING

**A Miller Freeman Publication**

Published monthly except in April when publication is semi-monthly

## AUGUST, 1951

VOL. 13

No. 9

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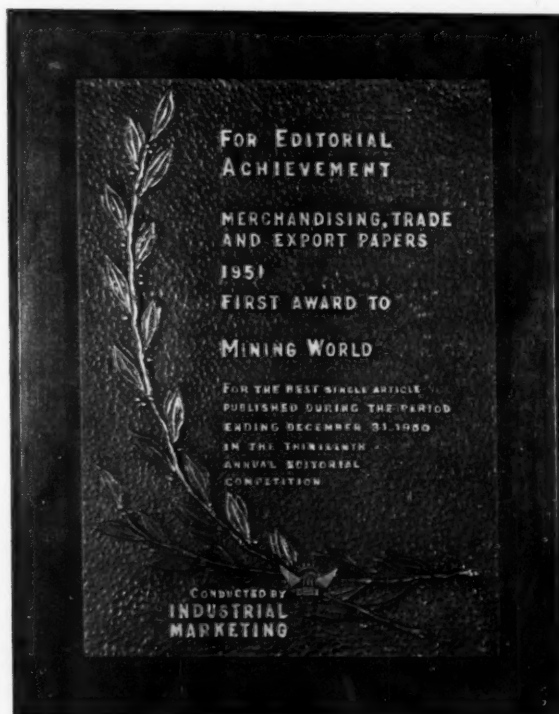
AUGUST, 1951

## DRIFTS AND CROSSCUTS

"Best Single Article . . ." in 1950

The article "Round Mountain Gold" which appeared in the June 1950 issue of MINING WORLD was written in response to an unusually great interest among our readers. One month after the story appeared, the interest had, if anything, increased and all extra copies of the June issue were sold. Later, choosing Round Mountain as the mining operation of the year, the staff of MINING WORLD selected a picture of the pit for the cover of the 1951 Yearbook.

Industrial Marketing in its 13th Annual Editorial Achievement Competition has selected "Round Mountain Gold" as the article of the year.



The first-place plaque for the "best single article among merchandising, trade and export publications" was awarded at the annual conference of the NIAA at the Waldorf Astoria Hotel, New York, New York, on June 27th.

In 1949, after winning the NIAA competition for outstanding research published during the period ended December 31, 1948, MINING WORLD recognized the award "as a challenge to even greater editorial service in behalf of the mining industry". We take the opportunity to reaffirm this pledge.

### From Algeria to Zululand

Max F. Holsinger, *Mining World's* general manager is making an extensive inspection trip to the mines and metallurgical plants in Europe and Africa. Because of the vast distances involved most of the trip is being made by air. Fortunately he was on the southbound



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**SAN FRANCISCO 5**

Dakar to Monrovia Pan American Airways plane instead of the northbound flight that recently crashed in the African jungle. He calls it the "steaming sultry jungle" after his 45-mile inspection trip to the Liberia Mining Company, Limited's, Bomi Hills iron ore mine over the newly constructed railroad from Monrovia.

He thought you might be interested in an outline of what he did during his three days in Liberia, and has sent the following official Liberian government program:

"Tuesday, arrive at Robertsfield, Liberia, by Pan American Airways flight No. 150, at 8:30 p.m., Greenwich Meridian time.

Wednesday, 9:45 a.m., visit Liberian Secretary of State Gabriel L. Dennis; 10:15 a.m., visit Secretary of Treasury William E. Dennis; 11:00 a.m., leave for Bomi Hills iron ore deposits by train.

Thursday, 8:00 a.m., airplane flight to Sinoe County over area of newly discovered ore deposits.

Friday, 10:00 a.m., conference with Director of Mines and Geology Arthur Sherman; 4:00 p.m., reception at the Pepper Bird Club; 5:30 p.m., departure for Robertsfield."

This was an easy schedule compared to other days when he has visited several mines in the same area and also talked to many leading engineers, financiers and government officials.

While in Europe he visited England, France, Belgium, Western Germany, Spain, the British Zone of Austria, Italy, Switzerland and Portugal. From London he reports "New mining developments receive priority attention by the governments of the European countries, because the shortage of most metals is acute . . . At government request, machinery scheduled for gold mining (largely in South Africa) is being voluntarily channelled to copper, lead, iron and other mining . . . At the Treпча Mines, Ltd., in Yugoslavia, plans are under way to make important molybdenum recoveries. Molybdenum will also be recovered from mine dumps at the Bleiberg Bergwersunion lead-zinc mines in Carinthia, Austria.

In France proper, the most important developments include the big openpit sulphur project at Narbonne (Societe Languedocinne des Recherches d'Exploitations Miniere) and the stripping of the tin deposit in Brittany preparatory to mining and gravity concentrating 285-tons per hour of tin ore. The project is backed by Geomines and a United States tin-can manufacturer.

When he arrived in Johannesburg he found 19 telephone and 11 letter invitations to visit mines in the Union of South Africa. Time will only permit him to visit gold, diamond, asbestos, chromite, lead, zinc, vanadium, tin, copper and cobalt mines, mills, smelters and refineries before his African tour is over.

Detailed reports and technical articles covering the trip are scheduled for publication in *Mining World*.

## COMING CONVENTIONS

October 14 through 19, 1951. **WORLD METALLURGICAL CONGRESS** with the 33rd National Metal Congress and Exposition, Detroit, Michigan.

October 28 through 31, 1951. **Third Congress of the PAN AMERICAN INSTITUTE OF MINING ENGINEERING AND GEOLOGY** with a joint meeting of the Geologic Society of America, the Society of Economic Geologists and the American Institute of Mining Engineers. Mexico City, Mexico.





## CAPITOL CONCENTRATES

### Why Wasn't the Murray-Baring Bill Reported Favorably As Indicated?

A week before July 1 the Senate passed and sent to the House a logical bill to change the assessment date to November 1 on a permanent basis. It would have given immediate relief to those who needed additional time this year and permanent relief for those whose work can best be done during the summer months.

Representative Baring of Nevada had a companion bill in the House and, furthermore, had 16 signatures (a clear majority) of members of the House Interior Committee asking that the bill be reported favorably, and still other members had agreed to vote favorably. There was, then, no possible excuse for the bill not being reported to the House and passed as there was no opposition except from Representative Regan of Texas. Why Regan, whose interest in mining is restricted to oil, would want to oppose such a bill is the latest Washington mystery.

One of the Congressmen who was present at the Committee meeting revealed that only 15 minutes was allowed to discuss the measure and that Regan got the floor and talked until the House went into session, when the committee was forced to rise without taking action. Nevertheless, as Baring had the necessary votes in his pocket, the chairman should have reported the bill favorably without any such delay.

Incidentally, the subcommittee on mining, of which Regan is chairman, has not considered or reported a mining bill this session.

#### ● Some Price Restrictions Relaxed

In spite of news articles to the effect that price ceilings may be removed from domestic sales of manganese and chrome ores, OPS officials report they have no intention of so doing. However, OPS has relaxed its ceiling price restrictions on all foreign and some domestic sales of strategic materials to the stockpile. The government may now pay over-ceiling prices for critical materials produced in this country if they come from marginal or sub-marginal sources. There seems to be some question as to whether DMA has yet heard about this.

#### ● Rumors Point Toward Incentive Payments

The Defense Minerals Administration on June 29 put out a release entitled: "New Facilities to Boost Output of Strategic Metals and Minerals." A reading of the release, however, shows that the heading is based on a list of companies which have been granted the five-year amortization privilege and not on any program of direct aid to the industry by DMA.

The facts are that DMA's exploration and loan program has bogged down completely, and for the reasons repeated in these pages for the past year and even prior to the passage of the Defense Production Act, when the intent of the Interior Department to inaugurate such a program had been known for at least two years. In spite of the fact that warning after warning had appeared in print, and that the House Interior Committee had consistently pointed out that the selective contract system would not work, Interior stubbornly insisted on having its way and DMA has spent a year and large gobs

of the public money proving the futility of such a method. Encouraging rumors indicate that Secretary Chapman is heartily tired of the situation and may force DMA to accept an incentive-payment system, such as the one which worked so well during the last year.

#### ● Silver Miners Look For Higher Price

Better times seem to be ahead for the silver miners since Mexico put an embargo on exports. However, do not forget that even though the price may rise to the Treasury sales figure of 91 cents an ounce, it will not go over that price until free Treasury stocks are exhausted—which will take a long time indeed.

#### ● Not Too High, Not High Enough

The Senate subcommittee, which polices defense production, stated that our tungsten situation "is little short of desperate" yet criticized the support program of \$63 per unit for domestic tungsten as being too high a price for acceptable  $WO_3$  concentrates. If the members would look into the returns per ton to a mine with 1 percent ore under this \$63 program, they certainly would not think the price too high, nor would they wonder why production is not increasing more rapidly.

The tungsten program sounded good to the hardrock miners until they found out that \$63 as a floor for 60 percent acceptable  $WO_3$  concentrates means about \$18 gross for 1 percent mine rock. Even years ago the Metals Reserve Company gave the miners \$36 per unit and today prices of supplies, labor, etc., are \$83 percent above the figure in those days, so what can one do with \$18 heads?

#### ● Fixed Premiums Opposed by OPS

The OPS is thoroughly disturbed over the proposal by the American Mining Congress that fixed premiums for metals apply across the board, that is with the same amount to large and small operators, high-cost and low-cost producers, and that market ceiling prices be adjusted periodically to meet any cost advances. According to OPS, this would destroy its attempt to hold the price line and would cost consumers, including the armed services, billions of dollars and would really benefit only a few companies.

#### ● RFC Regional Authority Is Restricted

Administrator Symington of the RFC has cancelled the authority of the 32 regional offices to make loans of \$100,000 or less without referring them to Washington.

When RFC's decentralization policy was first announced some years ago it was thought to be a bold and forward-looking step, and generally it so proved. Evidently Symington believes in rigid centralization of government controls for he remarked that "the most efficient way of getting uniformity quickly is to have the decisions come from one central authority." The current change probably is a most unfortunate move.

#### ● Zinc Is Under Complete Control

The zinc market is so short that NPA is taking over the entire zinc output, including imports, and will allocate the metal. Yet DMA has done little or nothing to expand domestic production of the metal and the government, by subsidy or otherwise, will not give a producer one penny over the market or OPS price. Does this make sense? :



In this view of the Mayflower surface plant, the miners' change room is on the left; the steam plant near the center has a tall stack; the warehouse and shop is right of the steam plant, and the tipple is at the top center.

Mine superintendent Clark L. Wilson explains New Park's renovation program: "Our goal is increased production with greater efficiency. We're minimizing replacement and maintenance by replacing all parts of the mine that are subjected to constant use."



## NEW PARK IMPROVES THE MAYFLOWER

*New Park Mining Company improves its Mayflower mine at Keetley, Utah, for greater, cheaper production at depth*

The New Park Mining Company was organized in 1932 and has been a profitable mining operation since completion of the Mayflower tunnel to the Mayflower fissure in December, 1939. The company has paid dividends for 10 consecutive years. To continue this type of successful operation requires continued planning of operating policies and mine and plant improvement.

Adequate ore reserves are the first consideration of all mining op-

erations. Development work was subordinate to production during World War II, yet reserves have increased by sinking the Mayflower shaft to develop lower levels and by discovery and development of bedded ores in sedimentary rocks in the western area of the mine. The Mayflower mine has produced over 600,000 tons of ore during the past 11 years. In the 1950 tabulation of Utah's mineral production the Mayflower mine was No. 3 in zinc, No. 4

in lead, No. 2 in gold, and No. 4 in silver. The mine produces approximately 300 tons of ore per day. The metal content averages six percent zinc, five percent lead,  $\frac{1}{4}$  ounce of gold and six ounces of silver.

New Park now has approval for Government assistance to proceed with three exploration projects that will add materially to geological information and will probably develop additional important orebodies.

As a company develops from a prospect many temporary or inadequate facilities are installed that must be changed as operations are expanded. The Mayflower mine has entered this phase of expansion by improvement.

The men at Mayflower mine office pose for a picture: J. Earl Smith, industrial relations manager; Francis M. Smith, clerk; Peter Joralemon, assistant superintendent; William Mair, mine foreman; and Walter Bauer, mine geologist.



### For More Efficient Haulage

The company's approach to an increase in general haulage efficiency has been to correct weaknesses in all components of the haulage system. Sharp curves in existing main haulage drifts are being straightened. At the same time, crews clean and increase the cross-section where necessary to provide safe, adequate clearance. Old installations of 30 and 35-pound rail are being replaced with new 40-pound rail. Grades and trackbed are adjusted where necessary, and at the same time, drainage

ditches are cleaned, deepened, and re-aligned.

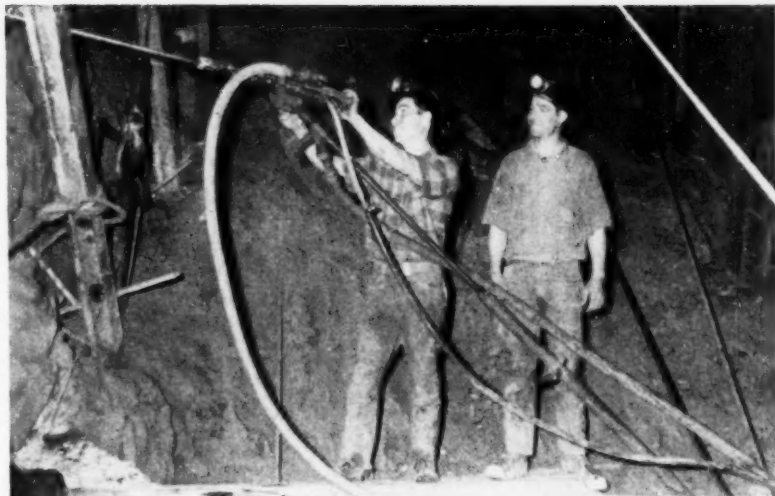
Mechanics in the shop, under master mechanic Howard Berry, are reconditioning all rolling stock; bodies of mine cars are being rebuilt, trucks repaired. New cars have been purchased and additional batteries obtained for locomotives.

The recently developed 1505 level, an example of New Park's present standard of haulage, provides double-track haulage from the Mayflower shaft to the Mayflower fissure, and single-track haulage to the Pearl on 30-pound rail laid in a smooth crosscut of wide cross-section.

#### Hoist With Curved Rope Raise

A new underground hoist, being installed at the top of the Mayflower shaft (800 level), provides for hoisting greater tonnages from greater depths and replaces a smaller hoist that will be used for auxiliary hoisting. For its installation, the three-compartment shaft was raised 45 feet, and a new rope raise, approximately 10 feet high, 14 feet wide, was driven from the hoist station 190 feet to the sheave installation. The rope raise is tapered, wider at the drum end, narrower at the sheave end. The modified catenary form of the raise provides ample rope clearance at all points without excessive opening of ground; the center sags approximately 3½ feet, and the raise is supported by steel sets. The new hoist, a Nordberg-350 hp., double-drum, a.c. hoist, operates at 1000 fpm. and exerts a maximum rope pull of 21,500 pounds; the old hoist had a working speed of 500 fpm. and a maximum rope pull of 10,000 pounds.

The new hoist room was excavated



Miner Wallace Bates operates an Atlas-Diesel rock drill on a long air bar during construction of the rope raise on the 800 level. Boyd Broadhead (right) has just helped Bates to set up the drill in this difficult, high position.

in the footwall of the Mayflower fissure. The room is 60 feet long, 30 feet wide and 20 feet high.

#### Room for Pump Expansion

The new sump and pump installation on the 1505 was constructed for permanent use as a collection station with room for expansion so that it can be used as a relay station when the mine is deepened.

A drift, 130 feet long, 18 feet high, and 10 feet wide, was driven about 6.5 feet below the 1505 level. A reinforced concrete bulkhead separates the drift to provide a 30-foot pump station and a 100-foot settling basin that is divided into two parts. A small entrance pool where muddy water is settled, has provision for removal of settled sand and slime.

The large clear-water pool provides for final settling and feeds the pumps. Foundations were built for three I-R 4 G-T centrifugal pumps; two were installed, and a third will be installed when necessary.

#### Ore Transfer at the Collar

Ore from the Mayflower fissure contains silver, lead, zinc and minor amounts of gold and copper. Ore from the Pearl fissure, 500 feet north of the Mayflower, contains gold and copper with smaller amounts of lead, zinc, and silver. To provide for segregated storage and transfer of these two types of ore, the new transfer on the 1505 level has three pockets, one for Pearl ore, one for Mayflower ore, and one for waste. Each pocket has a storage capacity of 100 tons.

Left: Muck boss Bill Larson supervises the skip pocket on the 800 level. This new all-steel system of support replaces wooden sets with rock pillars. The cars are 45-cu-ft. C. S. Card side dumpers. Right: Mine foreman William A. Mair rides a New Park 4-wheel cycle in the Mayflower tunnel. Approximately 8 of these cycles are in use by supervisors who save time, average 10 mph. on the 1½-mile trip from portal to winze. Light, composition wheels make them easy to pedal.









The new ore pass at the 800 level, providing two pockets, is built of reinforced concrete and steel so that it will last the life of the mine.

#### **Transfer of Waste for Fill**

A frequent weakness in mines which use waste rock for fill is over-handling of waste in getting it from the development heading to the stope that is being filled. In the Mayflower mine all completed stopes are filled to promote safe working conditions and to provide adequate wall support. Fill is derived entirely from development waste. To reduce the expense of waste transfer to the stopes, New Park drove an inclined gob raise from the 1270 level to the 800 connecting with each intervening level. The raise is raw with timbered chutes. The timber is treated with Chemonite, a copper ammonium acetate preservative which is resistant to fungus and insects.

#### **Cribbed-Raise Mining**

A cribbed raise system of mining that is new to the Mayflower mine is proving advantageous. It is used in narrow width veins (18" to 3') in the Pearl fissure. The cribbing timbers are 3x8-inch, 3x10-inch or 3x12-inch lagging notched on each end to form a box chute that is 3 ft. square outside. The stope and raises are advanced together using horizontal slices. The raises are set on 15-foot centers and every other raise is an ore chute. The remaining half are manways.

Ore and waste are blasted separately to maintain clean production. Sufficient waste is blasted to provide working room and fill for the stope. Waste that may be blasted with ore is hand sorted and used as stope fill.

This mining method is practical in narrow width veins that cannot be mined by other timbered or cut-and-fill methods because of excessive dilution.

#### **Stringer-Stull Mining**

Portions of the Pearl fissure are characterized by vein widths of 3 to 5 feet and wall rock that is fractured and ravelly. Using full 8-inch girts and posts with allowance of additional room for lagging reduces working space to a minimum. A variation of the stringer-stull set is being used in those areas. Posts and girts are 8 to 10-inch native round timbers sawed in half and framed at the ends. Caps are square unframed 8x8's cut to length in the stope. The flat side of posts and girts is faced to the wall, and two-inch lagging is laced behind the sets to



Ray Caspar operates an Eimco 12-B Rocker Shovel in 1502-N crosscut. This crosscut will provide for high-speed double-track haulage from the Mayflower fissure, and single-track haulage from the Pearl fissure to the Mayflower.

support the wall. This simple set reduces timber consumption, timber handling costs, increases the working space in the narrow veins, and has been found just as effective in holding the ground.

#### **Jack-Legs and Jumbos**

New Park has tested and adopted the use of jack-leg machines in some working places in the mine. The machine is practical in driving drifts in altered diorite, in blasting down stope faces on the Pearl fissure and cutting skip pockets and shaft stations.

Detachable tungsten bits are used in approximately 60 percent of the mine workings. This has appreciably reduced labor costs for drilling time and helped to increase tons per manshift.

One- and two-machine jumbos are used in driving main drifts. The use of five-foot aluminum shells on leyners has also helped reduce drilling time.

During the past two years, a new accounting system has been adopted to provide accurate charges for all direct-expense items in each underground working place. The record includes manshifts and wages with overtime, contract bonus, timber, explosives, and gob filling used, and production of ore and waste. (Fig. 1.)

This information is totaled each month and entered on a summary card (Fig. 2) for each working place which is used by shift foremen in analyzing the cost and unit production.

A second summary sheet (Fig. 3) includes charges for general mine expense and overhead prorated to each working place. This results in an overall charge per ton that is compared to average assays to deter-

mine whether or not a work place is a profitable operation. These summaries also provide a comparison of the cost of various methods of mining.

#### **Personnel Program**

With all its mechanical improvements, a successful mining enterprise is still largely dependent upon harmonious relations between employees and management. New Park has an active personnel and safety program to accomplish this purpose.

For many years the company has had an insurance annuity program for employees; the company pays 70 percent of the premium. The company, by agreement with United Steel Workers, Local No. 4264, provides non-occupational health and accident insurance for all employees. The employee pays the premium for coverage of his dependents.

The company has an active accident-prevention program and periodically trains a group of employees in mine-rescue work and first-aid procedure. Joint employee-management safety inspections are made twice each month. Labor-management meetings are held each month to discuss problems of interest beneficial to the mine operation. A contract system of mining is used to add incentive to mine production. A well trained personnel manager is available for consultation by employees on all problems that affect their employment.

This has been a short summary of New Park's recent developments to help keep its mine in good operating condition, to maintain an adequate force of competent employees, and so to insure its continuation as a successful mining enterprise.



The "St. Clair Sampler" is equipped with two diamond saws and is shown here mounted on the support rod.

## AIR-POWERED DIAMOND SAW USED FOR FAST, LOW-COST, ACCURATE SAMPLING

By G. B. Dauncey

Diamond Research Laboratory  
Johannesburg, Union of South Africa

**The "St. Clair Sampler" recently was tested by the Diamond Research Laboratory, Johannesburg, Union of South Africa. Results of the test are given in this article and should be of great interest to mining men throughout the world. Because of the importance of this new tool, Mining World has secured the permission of Dr. Young of the Diamond Research Laboratory to publish this article.—Ed.**

Of vital importance in the development of the Orange Free State and other mining areas are the modern methods of the uses of industrial diamonds. The determination of reef<sup>1</sup> content and value by the use of diamond bits penetrating to great depths, and the drilling of holes in hard rock with diamond bits for blasting operations, are well known and indispensable applications, as are the many uses to which industrial diamonds are put in the great mine repair shops on the surface.

Being the hardest material, and having the highest abrasive resistance known, it is natural that the industrial diamond, which was once discarded as useless, should in mod-

ern times be used in applications hitherto unheard of.

### Extending Diamond's Use

Apart from the wide varieties of diamond bits, and the many workshop and factory uses for diamond tools in connection with the mining industry, not the least important is the development of a small and useful tool which recently was tested by the Diamond Research Laboratory in Johannesburg. This tool, which was designed by Mr. W. St. Clair of Johannesburg, is in use for the quick cutting of representative samples of narrow reef in the stopes and tunnels of the Witwatersrand and Orange Free State gold mines.

Fitted with two small diamond-impregnated cut-off discs, of a standard commercial size, this portable and handy machine is limited only in use by the availability of

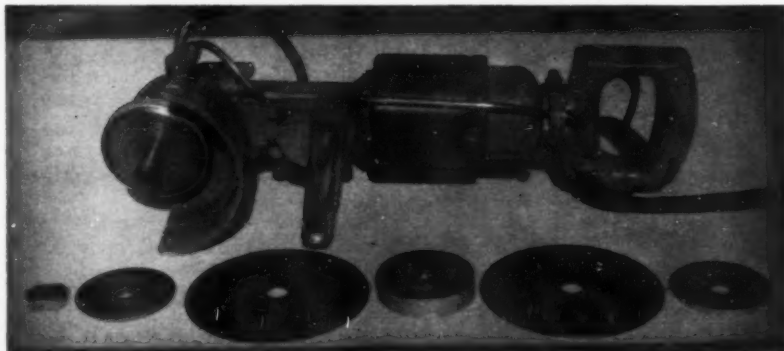
compressed air and piped water at the location where sampling is required to take place.

### Component Parts

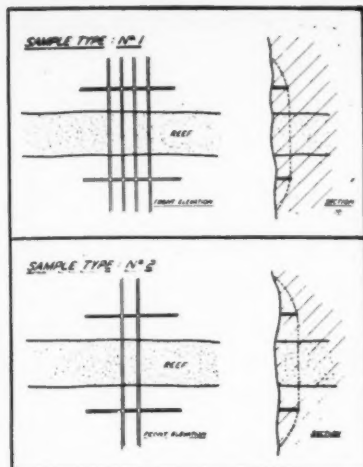
The power unit is an Ingersoll-Rand "Multi Vane" air motor size 3G, which gives a maximum spindle speed of 6,000 rpm. The handle grip of cast aluminum is fitted with a trigger-valve operating control, and the drive is transmitted from the motor by an enclosed shaft to a transfer gear box, at which point the axis of rotation of the shafts are inclined at 90° to each other by means of spiral bevel gearing. There is no gear reduction.

Mounted on this shaft, which is  $\frac{5}{8}$  inch in diameter, are twin diamond-impregnated cut-off discs of  $5\frac{1}{2}$  inches diameter separated one from another by a three-inch-diameter distance piece  $\frac{7}{8}$  inch in width

The saw with the cutting assembly parts in the foreground.



<sup>1</sup>Thin, gold-bearing, conglomerate beds of the Rand are called Reefs.—Ed.



Sample type No. 1 illustrates how two cuts can be made to triple the size of sample taken by only one cut. Type No. 2 illustrates how the ordinary sample is taken by making one cut.

and positioned at each end of the shaft by flanges which are 3 inches in diameter. A roller guide of 4¼ inches diameter controls the maximum depth to which the discs can cut, and the whole assembly is secured by a nut on the end of the shaft.

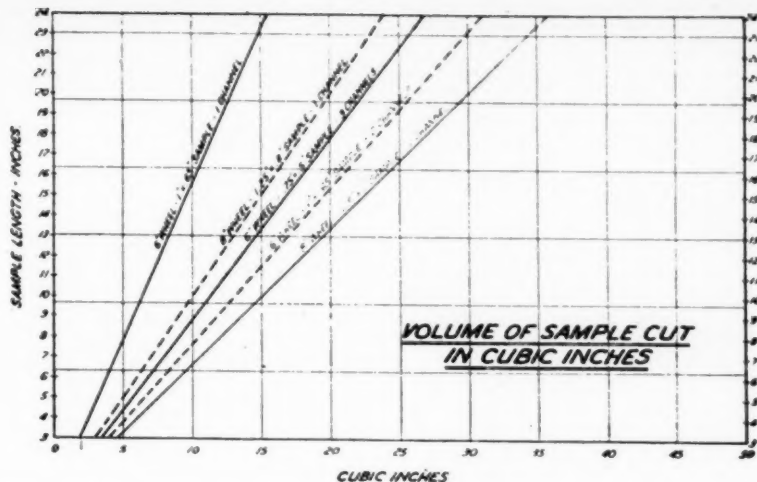
#### Two Grips Provided

Bolted to the driving shaft casing, and at right angles to the motor, is a second handle, the function of which is twofold. First, it provides a grip for the left hand to steady the machine, and second, it is designed as a guide for the machine on a tubular rod.

Through this tube, on which the sampler can be moved laterally, runs a solid rod of any desired length, dependent upon the head space available when working, and the height at which rock specimens are to be taken. Fitted to this inner rod, the end of which rests on the ground when cutting operations are in progress, is an adjustable collar, which controls the position of the outer tube and sampler. Thus, the machine can be adjusted to any desired height, limited by the length of the inner rod.

The latter, when resting on the ground and taking the greater part of the weight of the machine, provides rigidity and support when in operation and permits straight cuts to be made in the rock faces with a minimum amount of vibration. To provide flexibility the handle is mounted on a swivel, and the machine is therefore permitted to move under control through an arc of about 90 degrees.

The airline, which is fitted with a



Graph used to determine the volume in cubic inches for sample cut with six and eight inch diameter saws for sample lengths from three to 24 inches. Sample depth cut being 0.65 to 1.5 inches and one to three channels taken.

displacement lubricator for the motor and a gauze filter, is attached to the control handle and offers no impediment when operating. The water hose, complete with a control valve and gauze filter, carries water to the cutting-discs shield, which is drilled and provided with an extension pipe and union. Thus a constant flow of water under pressure is available for the cutting discs when in use.

As a precaution against possible damage, a movable guard is attached for the protection of the discs when in transit. This guard can be moved to one side when the sampler is in operation.

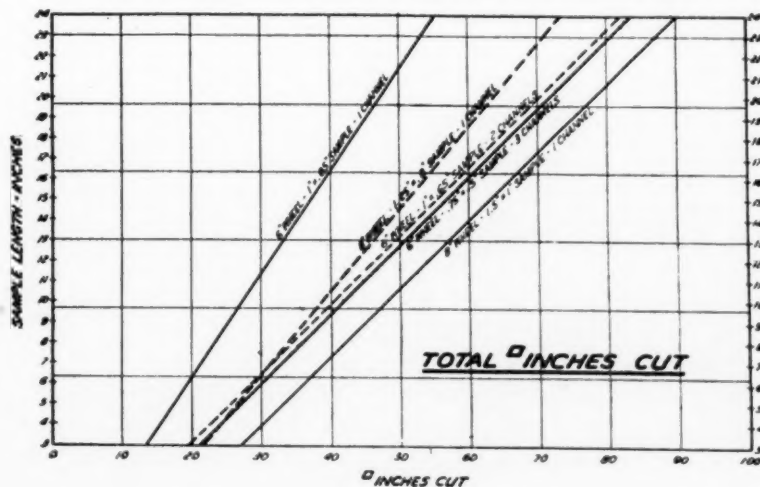
#### Testing the Samples

To obtain details of the performance and operation of the St. Clair

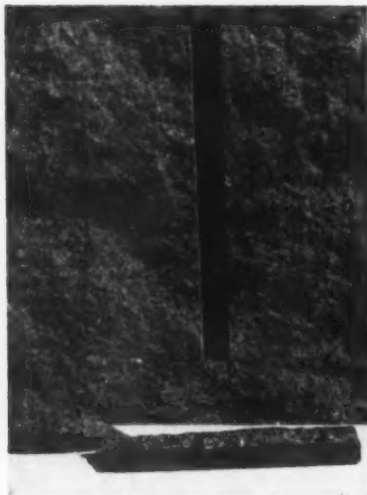
Sampler, a short series of tests were made. Although normally used for the sampling of quartzite and reef for the purpose of the tests, cuts were made in a block of black granite which was homogeneous and extremely hard.

After the portion of the rock to be sampled is selected, and marked according to the lengths of sample material required, the air and water hoses are connected to the machine, which is then placed in position. The correct height is fixed, and the outer tube is adjusted on the supporting rod to allow for the length of the cut to be made. The supporting rod is placed on the ground in line with and parallel to the desired line of the cut, the water is then turned on, and the motor set in motion.

Graph used to determine the square inches of reef area cut for sample lengths from three to 24 inches when using six and eight inch diameter wheels and one to three cuts.







The cuts have been made and the sample wedged off. It is shown at the base of the test block.

The first cut or "plunge" is made in the rock face to the desired length and a little above a mark indicating the top of the required sample. The maximum depth obtainable is to the face of the roller guide, but this will vary slightly according to the contour of the rock, and the diameters of the cut-off discs, which will, of course, diminish as wear increases.

After the initial "plunge" has been taken, the machine is fed longitudinally and steadily down the rock face to a point which is again a little beyond the required length. The cut is kept to the desired depth by the operator, and guided by the position of the supporting rod. The machine is then withdrawn, the supporting rod removed for convenience in handling, and one of the cut-off discs removed from the shaft. Horizontal cuts are then made at the top and bottom of the sample to the same

depth in preparation for the removal of the specimen.

#### Sample Wedged Out

To remove the sample, steel wedges are inserted in one of the vertical cuts and are lightly tapped in turn with a hammer. The sample will then break out, often in one or two pieces, and is available for the purpose of geological examination or chemical analysis. If small specimens are required, a number of horizontal cuts can be made, making it easier to remove the samples intact.

Checked when making two typical cuts, the average time taken to cut 12 inches of black granite to a width and average depth of  $\frac{7}{8}$  inch was as follows: plunge, 28 seconds; cut, 121 seconds.

These times will naturally vary considerably. The feed and speed of the cut will differ according to the types of rock from which specimens are to be taken.

Working under normal conditions, such a specimen, after the sampler had been set up, could be completely removed from the rock face in five to seven minutes.

#### Surface Applications

The saw has been adapted for surface work where compressed air is not available by using a light-weight gasoline motor as a power source. Power is transmitted to the saw through a flexible drive shaft. The water coolant can be supplied from a portable hand-pressure tank.

#### Mechanical Considerations

There are few maintenance problems in connection with the machine. The displacement lubricator in the airline must be kept filled with oil, and the gauze filters in the air and water lines cleaned occasionally.

Bearings are lubricated by mist and splash, and in all cases the lubricant used is S.A.E. 20.

It is important that the diamond wheels be protected when not in use. The guard provided for this purpose should always be placed in position in front of the discs, thus lessening the possibility of accidental damage by impact. When in transit, or stored away for any length of time, it is advisable to remove the diamond discs and store them away carefully in their original packages.

#### Scientific Means, A Worthy End

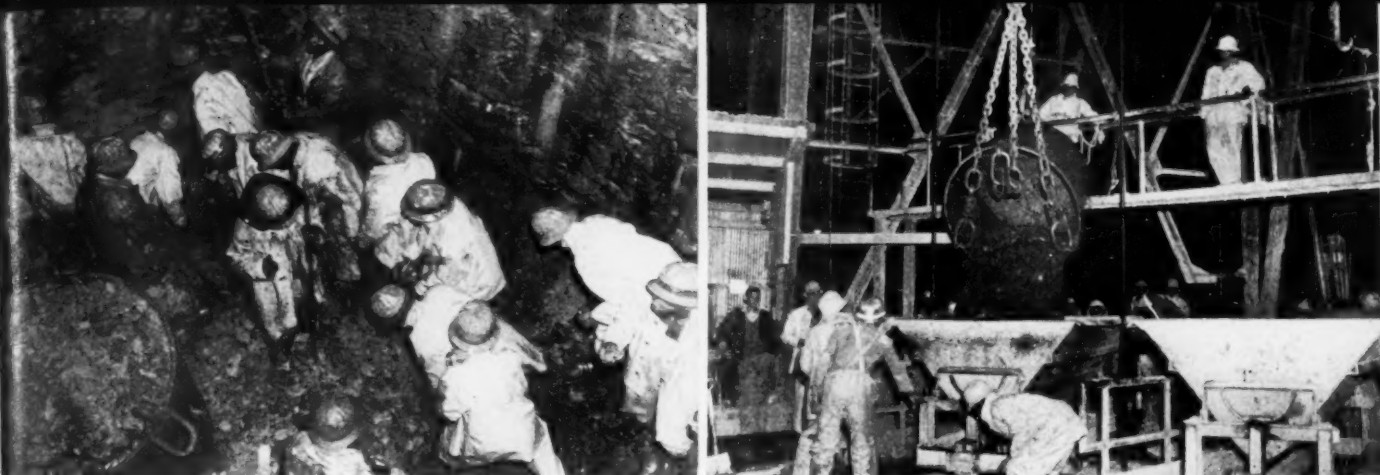
In general, this compact, robust machine has fulfilled a long-felt want. This procedure, in which a clean and precise representative channel sample of any required size can be removed from a section of the working face, is far more desirable than the present haphazard methods of chip sampling generally in use. In addition, the machine is extremely simple to use on narrow reef, even under the most difficult conditions. It is easy to maintain, speedy, and accurate in operation. Due to the use of water as coolant and to remove the slurry, the presence of dust when cutting is negligible.

Following two years of development and testing of the sampler in South Africa, test programs are being carried out in Mexico and Canada to determine further its applications and limitations. Costs of this type of sampling will of course vary with the hardness of the rock and the position of the sample, i. e. back, rib or face. Another important factor in the saw's use will depend on the accuracy of the sample obtained by existing hand moiling.

LEFT: The saw operated by a native is making a vertical test cut in a block of granite. The air hose is attached at the base of the handle; the water used as a coolant and to remove the cuttings flows through the tube alongside the air motor. RIGHT: Taking a horizontal cut. The supporting rod is not used, and one of the diamond saws has been removed.







Anglo-Transvaal Consolidated Investment Company, Limited, Photographs.

LEFT: On the bottom of Virginia No. 3 shaft. The picture was taken just before the end of the record-breaking April sinking. RIGHT: A three-ton bucket load of waste from the last round in April is dumped on the surface. To save time the buckets dump directly into a car (cocopan) instead of into a bin. After the buckets have been hoisted clear of the collar a hinged steel door is dropped over the shaft and the car trammed under the bucket. The natives, tied to the railing so as not to fall down the shaft, hook the dumping hook into the bucket's bottom ring. Two cables from two single-drum hoists are used for hoisting. The other cables support the Galloway stage. The bucket loaded with drill steel in the right background will be lowered after all the muck has been hoisted.

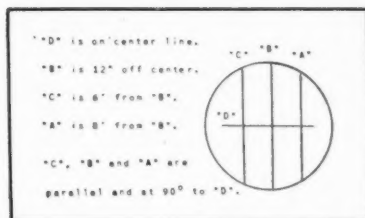
## VIRGINIA SHAFT SINKING RECORD DRAWS COMMENTS AND QUESTIONS FROM MINERS

**The report on the world shaft sinking record in the June issue of Mining World has drawn international comment. Additional data and pictures on this page will answer many of the questions asked by readers about shaft sinking practice.—Ed.**

Reinforced concrete dividers (buntions) are used instead of steel to reduce the amount of steel used and obviate steel corrosion by underground water. They are made at the mine in molds with a vacuum process to speed setting of the concrete. Each is streamlined and of smaller size in the center than at the ends to facilitate ventilation air flow in the shaft. They are used solely as supports for skip guides and service facilities in the shaft and have no bracing function. They are made in the following four sizes and placed in the 24-foot diameter shaft as shown in the diagram. Member "A" is 22-feet long, 20-inches deep and 7-inches wide. Weight is 3,080 pounds. "B" is 24-feet 8-inches by 20-inches by 7-inches and weighs 3,450 pounds. "C" is 19-feet 4½-inches by 20-inches by 7-inches and weighs 2,170 pounds. "D" is 15-feet 9½-inches long by 12-inches deep by 6-inches wide and weighs 1,300 pounds.

### Comments

T. C. A. MEYER, consulting engineer, Anglo-Transvaal Consolidat-



ed Investment Company, Limited, Johannesburg, South Africa. "The prime object of the management of the Virginia mine is economy in capital charges and at the same time bringing the mine into production in the shortest possible time. Normal Orange Free State sinking at

about 220 feet per month cost £90 per month. At the record rate it has been reduced to about £50. The date for initial production has also been advanced by about 18 months."

J. MURRAY RIDDELL, mining engineer, Houghton, Michigan. "To my notion, we cannot altogether set up a criteria on footage advance in a given period of time, because there are too many other factors which play an important role. Due consideration should be given to the size of the shaft, number of men employed, depth and nature of ground penetrated—what is the progress per man shift, or better yet, put it on a cubic yardage basis."

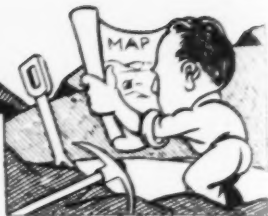
**A stockpile of reinforced concrete dividers (buntions) at the Virginia mine. They are set at 15-foot vertical intervals in the shaft to form eight compartments and support the skip guides, air, water and pump columns and electric cables.**



John D. Mitchell Tells of

## LOST MINES AND BURIED TREASURES

# THE ADAMS DIGGINGS



The search for the Adams diggings probably has cost the lives of more men than has the search for any other lost mine in the West. Adams, himself, spent the latter years of his long and eventful life in an effort to return to the fabulously rich placer which he and his partners were forced to abandon when their lives were threatened by a band of blood-thirsty Apache Indians.

In *Notes of a Military Reconnaissance from Fort Leavenworth in Kansas to San Diego in California*, published in 1848, Lieutenant W. H. Emory stated: "The Prieto (Black) River flows down from the mountains freighted with gold. Its sands are said to be full of this precious metal. A few adventurers who ascended the river hunting beaver washed the sands at night when they were halted and were richly rewarded for their trouble. Tempted by their success they made a second trip and were attacked and most of them killed by the Indians. My authority for this statement is Landeau, who, though an illiterate man, is truthful."

In a letter dated March 5, 1882, Robert E. Emmet, then a Second Lieutenant of Ninth Cavalry, United States Army, wrote: "Nearly 20

years ago, a man named Adams with seven others came from California into Arizona prospecting. They stopped at Camp Apache for rations and then continued east. A few days' march from Apache they found a great deal of gold in a small canyon. One of the men, a German, worked about 10 days, then became alarmed about the Indians and left. He carried about \$10,000 to \$12,000 worth of gold as a result of his labor. This is shown by the books of the trading post at Yuma which bought the gold from him.

"The remainder of the party built a cabin and continued work until rations were low, when all but two, Adams and another man, started back to Camp Apache for supplies.

"Adams and his companion waited until they thought the others should have returned and becoming alarmed at their long absence, started in search of them. Looking back from the mountain up which they were climbing, they saw the cabin in flames and their comrades, who had come in from another direction, being massacred by the Indians. They concealed themselves until after dark and thus made their escape.

"Adams and the 'Dutchman' had only the clothes they wore on their

backs, and one pistol and a few rounds of ammunition. They headed south and managed to live on game they killed with the pistol. After wandering around for about 10 days they were found in an exhausted condition at the headwaters of the Gila River by a scouting party from Fort West."

Adams was still living at the time Lieutenant Emmet's letter was written. The man who escaped with him is said to have been killed by a herd of cattle in Texas.

Fort West, now abandoned, was on the Gila River, north and west about 20 miles from Silver City, New Mexico. The mine is believed to be north of Fort West and probably near the headwaters of the Prieto (Black) River.

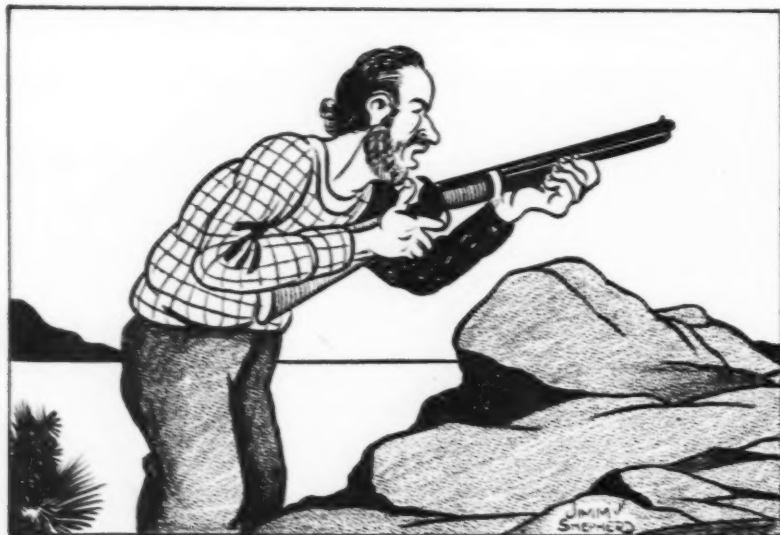
Shortly after his rescue, Adams was reported to have stolen an army horse, two revolvers and other equipment and before he left camp one dark night to have killed several Indian prisoners who had been in the band that massacred his friends at the mine. As a result Adams became a fugitive for over 20 years. Finally, when at liberty to go where he pleased, he tried to find his way back to the old placer diggings. He is known to have spent the rest of his life looking for the fabulously rich deposit and the \$60,000 worth of gold nuggets and dust buried beneath the cabin burned by the Indians.

Some of the many expeditions that have set out to find the mine have used Fort Wingate, in New Mexico, as their starting point. Because of the small number of men in each party, and with the Apaches continually on the war path at that time, a large number of men lost their lives.

The burned cabin was said to be on the side of a narrow gulch, near an old corral where the horses were kept. The sluice boxes were directly in front of the cabin and the flow of water to operate them was large.

Adams died at the age of 93 without having found a place that even resembled his old diggings. The Prieto still flows down from the mountains freighted with gold.

One of the men, a German, worked about 10 days, then became alarmed about the Indians and left.



## ACTIVITIES OF U. S. MINING MEN

James N. Sherwin has been elected a vice president of The M. A. Hanna Company, Cleveland, Ohio. He had been vice president of the Hanna Coal and Ore Corporation.



**DWIGHT H. PLACKARD**, of Dallas, Texas, has been made the new executive secretary and treasurer of the New Mexico Miners and Prospectors Association. He takes over from Jack C. Pierce, who, after five years at the post, has gone to Phillipsburg, New Jersey, to become assistant editor of COMPRESSED AIR MAGAZINE. Plackard, a former newspaperman, has been active in southwestern public relations and related fields for 15 years. A former president of the Public Relations Institute of Texas, he is a director of Greater Texas, Inc., a non-profit, educational corporation.

Richard F. Sentner has been appointed director of the Iron and Steel Division, National Production Authority, U. S. Department of Commerce and is replacing Melvin W. Cole. Sentner is on leave from his job as assistant executive vice president of U. S. Steel Corporation, Pittsburgh, and was deputy director of the NPA Division before his new appointment. Replacing him as deputy director is Wallace B. Quail of Middletown, Ohio. He is manager of the central area for Armco Steel Corporation. Another NPA appointment is that of Joseph W. Mullally as deputy director of the Copper Division; he is on leave from Anaconda Wire & Cable Company.

Irwin Vogelsang, deputy director of the National Production Authority's Tin, Lead, and Zinc Division presided at a recent meeting of the Lead Industry Advisory Committee in Washington at which the members advised officials of NPA to study possible misuse of DO ratings assigned to specific programs. At the meeting were Jean Vullequez, American Metal Company; William B. Clancy, American Smelting & Refining Company; Clarence Glass, Anaconda Sales Company; Charles Ince, St. Joseph Lead Company; and Neil R. Taylor, U. S. Smelting, Refining and Mining Company, all of New York.

Ray Schulz has returned to Kellogg, Idaho, after spending three years as mining engineer at Cyprus Mines Corporation's property at Skouriotissa, Nicosia, Cyprus Island in the Mediterranean.

John Graves has left The Hanna Company's engineering department at Iron River, Michigan for service with the U. S. Marine Corps.

George W. Jaedecke retired May 1 after 35 years of service with the Cleveland Cliffs Iron Company, most recently as mining department purchasing agent at Ishpeming, Michigan. He has been succeeded by Iver Johnson. Other Cleveland Cliffs personnel changes recently were the appointment of Jack Chisholm

as acting superintendent at the Canisteo mine at Coleraine, Minnesota; he had been assistant superintendent and in his new job succeeds E. L. Bemis, resigned; and the appointment of Giulio Giuliana as acting superintendent of the Wanless-Atkins mines succeeding Roland Erickson, resigned.

Charles R. Ince and Rene J. Mechin have been elected vice presidents of the St. Joseph Lead Company, New York.

William F. Betzler, Sr. has been appointed mining engineer at Inter-State Iron Company's Longyear mine, Hibbing, Minnesota. He was formerly an assistant mining engineer attached to the headquarters office at Virginia, Minnesota.

Keith Whiting of Wallace, Idaho, has been appointed exploration engineer in American Smelting and Refining Company's western department at Salt Lake City, Utah. He had been chief geologist of the company's northwest department since 1946 and has been succeeded by Manning W. Cox, geologist in the department for five years.

Robert E. Sorenson, Wallace, Idaho, has been elected to the board of Pend Oreille Mines and Metals company, largest operator in northeastern Washington's Met-aline mining district. He succeeded L. E. Hanley, Wallace, who recently retired as head of Hecla and Polaris mining companies because of ill health. Sorenson is Hecla's chief engineer and geologist. Hecla has a financial interest in Pend Oreille through Sullivan Mining company. Sorenson previously had been elected a director and vice president of Hecla and a director of Polaris.

Paul W. Zimmer is now working as a geologist on the Minnesota iron ranges for The M. A. Hanna Company, with headquarters at Crosby, Minnesota. He had been geologist for the St. Joseph Lead Company at Balmat, New York.

Robert W. Van Evera has left for Jamaica where he will be chief engineer for the Reynolds Jamaica Mines Ltd. He had been foreman at The M. A. Hanna Company's Gilbraith mine on the Mesabi iron range.

Hollis G. Peacock, formerly employed by the United States Smelting, Refining and Mining Company, Lark, Utah, is now chief geologist for Chief Consolidated Mining Company, Eureka.

W. M. Stoll has been appointed mining engineer for Kennametal, Inc., Latrobe, Pennsylvania. He will have charge of locating and procuring minerals essential for production of cemented carbides used in metal-working and mining tools.

C. H. Simmons, president of the Universal Die Casting & Manufacturing Corporation of Saline, Michigan, and president of that firm's subsidiary, Utilez Manufacturing Corporation of Fowlerville, Michigan, has been elected a director of Crescent Butte Mining and Milling Corporation of Gunnison, Colorado.

Allan S. Richardson, Butte, Montana, chief ventilation and industrial hygiene engineer for the Anaconda Copper Mining Company, was one of the five men to receive a distinguished achievement medal at the Colorado School of Mines commencement exercises held May 25. Among students receiving honors at Mon-



Officials of the Vanadium Corporation of America made a trip west to see the company's operations at first hand recently. During the trip the group visited, in Colorado, the vanadium-uranium processing plant at Durango, and the processing plant at Naturita; and in Utah saw the company's operating mine in Monument Valley, San Juan County, and the Marysville uranium mine now under heavy development. These directors and affiliates of the company are, left to right, front row: D. W. Viles, vice president in charge of mining for VCA; Brooks Spencer, vice president, American Brakehoe Company; Ray Felsing, Sales Department, VCA; Robert Lewis, partner, Eastbrook & Company; Broderick Haskell, vice president, Guarantee Trust Company, New York, and director of VCA; B. O. Brand, comptroller, VCA; Lester Grant, Director, VCA; and in the back row: Fred Moore, partner, Kidder Peabody Company; W. C. Keeley, president, VCA; Ward A. Miller, vice president of VCA's sales department and director; J. G. Holland, legal advisor of VCA; Thomas Foristall, publicity director of VCA; H. W. Bathmann, metallurgist for VCA. Included in the visiting party but not appearing in the picture were Andre Jaoul, director of foreign relations of Electro-Chimie d'Ugine of France; Woodson Hancock, director of VCA, and several others.



Daniel Geary of Honduras, a junior, who won an American Smelting & Refining Company's scholarship for mining engineering; Charles W. McPherson, a senior in metallurgical engineering, who won a Viola Vestal Coulter scholarship; Frank J. Vereil, senior in metallurgical engineering, who won a medal and certificate from the Montana Society of Engineers; and Ford W. Knight, junior in metallurgical engineering, who won a scholarship from Chapter G. PEO Sisterhood.

William E. Cullen has been appointed director and president of Independence Lead Mines, Inc., Wallace, Idaho, succeeding his late father.

Justin B. Gowen, geologist and mining engineer has resigned his position with Manganese Products, Inc., Seattle, Washington, and has accepted a position with the DMA in Washington, D.C., where he is now stationed. He formerly was employed by the Anaconda Copper Min-

ing Company at Butte, Montana. In 1940 he worked at Katowica, Poland, in a zinc-lead mine for an Anaconda subsidiary.

T. P. Billings, retired official of the U. S. Smelting Refining and Mining Company and now a consulting engineer, Salt Lake City, Utah, has been appointed assistant chief of the Lead-Zinc Branch of the Supply Division, Defense Minerals Administration, Washington, D.C.

Weston Bourzest, former field engineer and geologist for the Kennecott Copper Corporation, has been appointed chief of the Minor and Rare Metals Branch of the Defense Minerals Administration's Supply Division, Washington, D.C.

F. A. Koeschlein has been appointed general manager of the Phosphate Division of the International Minerals & Chemical Corporation, Chicago. Nelson C. White, assistant manager of the Potash Division at Carlsbad, New Mexico, has

been transferred to Chicago, and Carl A. Arndt has succeeded him.

David D. Bretlo and Clayton J. Roberts have been appointed pit foremen at the Sherman mine, Oliver Iron Mining Company, Chisholm, Minnesota. Leon S. Murray has been made shop foreman at the company's headquarters at Hibbing.

Robert W. Goshan of the Defense Minerals Administration is chairman of the recently established Molybdenum Advisory Committee. Industry representatives attending the first meeting of the committee were Carl M. Losh, Jr., of the Climax Molybdenum Corporation; Max Hirsch, Molybdenum Corporation of America; Carl K. Lenz, Kennecott Sales Corporation, Kennecott Copper Corporation; A. H. Singer, Miami Copper Company; and John H. Spillane, United States Vanadium Company. All these men work out of the companies' New York offices.

### Obituaries

William Quinn Mather, 76, honorary chairman of the board of the Cleveland-Cliffs Iron Company, died April 5 at Cleveland, Ohio, ending an association with the Michigan iron mining firm of over 70 years standing. He had joined the company as a clerk in 1878, became a vice president in 1885, president in 1896, chairman of the board in 1923 and honorary chairman in 1947.

Peter B. Brady, 86, pioneer Arizona mining engineer, died at Tucson, Arizona, March 26. He had been employment manager for the New Cornelia Branch, Phelps Dodge Corporation, Ajo, for 25 years until retirement.

Gomer P. Jones, 86, well known mining engineer in British Columbia for many years and a former president of the British Columbia Chamber of Mines, died in Vancouver recently.

J. C. Jensen, 81, one of the organizers and a director of Combined Metals, Inc., parent company of Combined Metals Reduction Company, died April 30, at Salt Lake City, Utah.

James Herbert Macia, 76, for many years superintendent of the Tombstone Consolidated Mining Company, Tombstone, Arizona, died April 1.

Carl M. Britt, 55, until retirement head of the Britt and Britt Mining Company at Miami, Okla., died April 26 at Norman, Okla., after a long illness. He had headed the firm for 27 years.

Clyde T. Griswold, consulting geologist and mining engineer of Albuquerque, New Mexico, died in April. He also had been mining engineer for the Santa Fe Railway and World War II manager of the Panzer Corporation of America's Grants operations, among other positions.

James L. Leonard, 62, prominent Spokane, Washington, mining engineer, died of automobile injuries sustained in Spokane, May 5. He had been a past president of the Northwest Mining Association, and the Spokane Association of Engineers. He was president of the Metaline Mining and Leasing Company and a director of Grandview Mines. He also was vice president of Leonard, Matthews & Ryan, Inc., Spokane mining, mortgage and real estate firm.

Raymond Edgar Tower, 62, died May 13 at Salt Lake City, Utah. A well known mining and metallurgical engineer, he was vice president and general manager of Sarita Milling Company, Salt Lake City, member of the AIME, and a consultant.

## AN IMPORTANT NEW MOVE IN PROMOTING MINE SAFETY



### M.S.A. PNEOLATOR better chances of recovery in all cases of ARRESTED BREATHING

Here is one of the most important contributions to mine life-saving equipment in a decade—the M.S.A. Pneolator.

The Pneolator assures maximum chance of recovery to miners overcome by poisonous gases or asphyxiated from any other causes. It automatically provides oxygen for the lungs at the pre-selected amount and pressure, continuously, rhythmically, effectively, and safely!

No "suction" cycle—exhalation takes place by the normal passive

return of respiratory muscles. Immediate change over to inhalator when patient starts breathing.

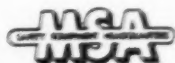
Housed in a rugged, lightweight carrying case, the Pneolator can be conveyed immediately to the patient. Ask for Bulletin No. CH-2.

NOTE: The first few minutes after breathing has ceased are the most critical. Immediate application of manual artificial respiration should be started and continued until Pneolator is in use.

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# SWING HIGH... SWING LOW— LORAINS work where you want to dig

**HOW  
LORAINS  
SOLVED  
2 PROBLEMS**

► Here are two mining operations as different as day and night. One is stripping on top in the "wide open spaces". The other is working in close quarters in an underground mine. Lorain had the best answer for both of these problems! Here's how they were solved:

**HADDOCK COAL CO.**, Crafton, Penna. selected a Lorain-820 Stripper to reach "high, wide and handsome" for fast removal of overburden that consisted of slate and yellow shale, interspersed with layers of sand rock. 34 ft. boom with 27 ft. dipper stick and 1 1/4 yd. dipper gave long range digging and spoiling—to dig deeper cuts and cast material higher onto farther spoil banks.

**DOMINION STEEL & COAL CO., Ltd.** of Sydney, Nova Scotia were faced with "ceiling zero" in their underground site 2 miles off shore below the Atlantic Ocean. Their need—a short, stocky, compact machine to work in extremely cramped quarters. The answer—a 1/2-yd. Lorain TL Tunnel Shovel with its short 10 ft. boom and 8 ft. 8 in. dipper stick.

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*For the unusual—or everyday mining jobs, there's a Lorain to fit your needs... from 1/2 to 2 yd. classes, on crawler or rubber-tire mountings—with any of 5 interchangeable front ends. Your Thew-Lorain Distributor has the best answer to your mining needs!*

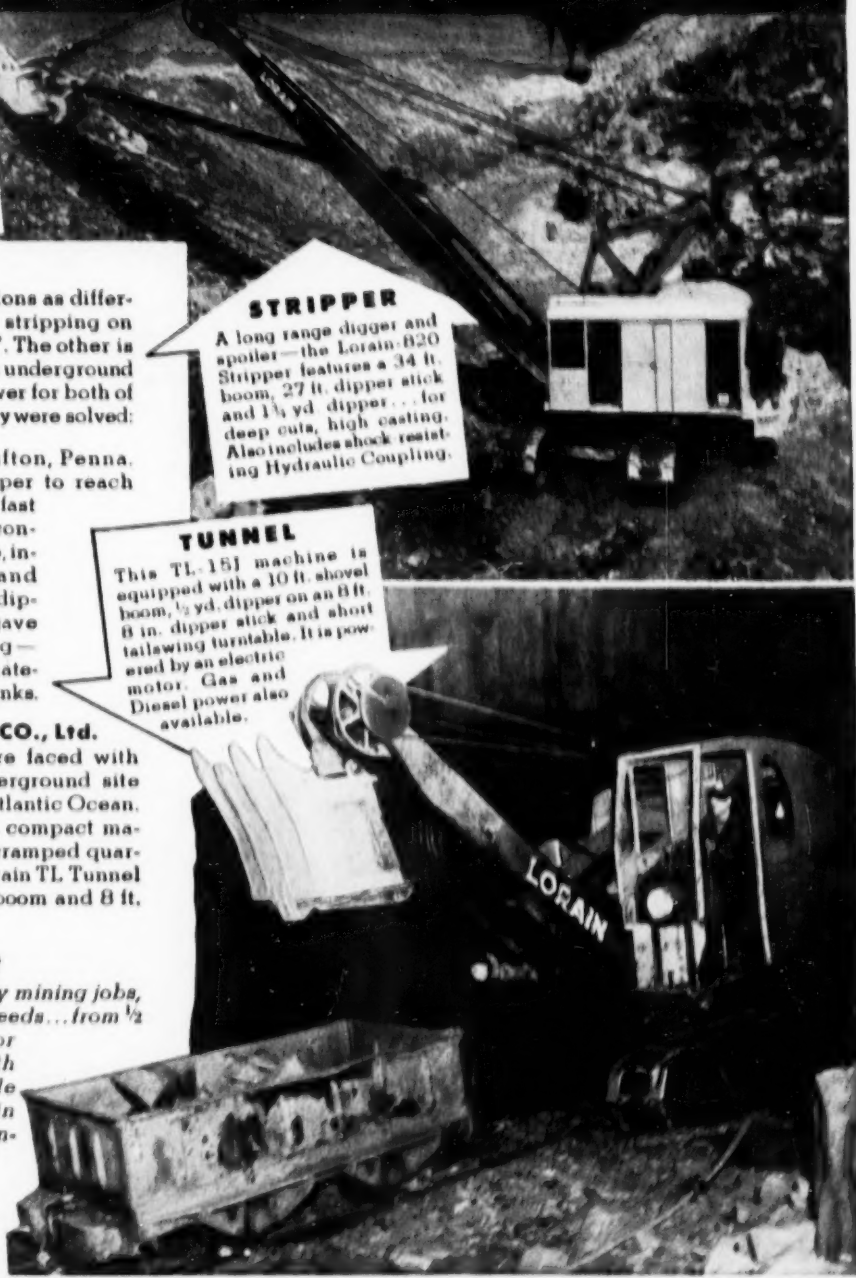
**THE THEW SHOVEL CO.  
LORAIN, OHIO**

### STRIPPER

A long range digger and spoiler—the Lorain-820 Stripper features a 34 ft. boom, 27 ft. dipper stick and 1 1/4 yd. dipper... for deep cuts, high casting. Also includes shock resisting Hydraulic Coupling.

### TUNNEL

This TL-15J machine is equipped with a 10 ft. shovel boom, 1/2 yd. dipper on an 8 ft. 8 in. dipper stick and short tailrowing turntable. It is powered by an electric motor. Gas and Diesel power also available.



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*9 or 6  
months*

**1000 hours of**



**FAST DUMP** . . . body raises at touch of electric switch . . . streamlined bowl clears loads instantly.

## **Hauling sandstone and gravel in tight quarters, 2 C Tournarockers speed Connecticut road jobs for Fred Onuparik Construction Co.**

At New Haven, Connecticut, Fred Onuparik Construction Company tackled a difficult hauling problem. The job involved moving 70,000 cubic yards of sandstone from a short 1700' stretch to relocate heavily-traveled U. S. 1 around the city's business district. Both loading and dumping areas were narrow and restricted . . . haul roads, rocky and rough. Mobile, high-speed, off-road haulers were needed for lowest cost operation . . . Onuparik's LeTourneau Distributor had the answer . . . 2 rear-dump, 16-ton C Tournarockers.

Teamed with a 1 $\frac{1}{4}$ -yd. shovel and working 2000' cycles, the 2 big, rubber-tired "C's" delivered up to 1200 cubic yards of heavy shot rock per day. Each 16-ton rig took 8 to 10 passes from the well-

heaped dipper . . . carried 10 pay yards per load. "We're very well pleased with this performance," reports Owner Fred Onuparik, who later used his 2 LeTourneau rear-dump haulers on a 55,000-yd. relocation of Connecticut State Rt. 109 between Thomaston and Watertown.

Handling mostly rock and gravel, Onuparik's rigs worked approximately 1000 hours on these 2 jobs, with a mechanical operating efficiency of 98%. Both 165 h.p. "C's" were driven job-to-job under their own power . . . completing the 45-mile trip from New Haven to Thomaston through very heavy main highway traffic in 3 hours.

Ability to maintain high standards of output and mechanical efficiency under all job conditions is the reason why progressive mine and quarry operators are turning to rear-dump Tournarockers for low-cost hauling of rock, gravel, ore, and other materials. Your LeTourneau Distributor will be glad to show you job-proved facts and production figures on new 18-ton "C's", as well as on 9, 35, and 50-ton Tournarockers. Call him, or write TODAY.

**LETOURNEAU** **TOURNAROCKERS**  
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# operation... 98% efficient



**BIG TARGET...** Tournarocker's 12' 5" x 8' top opening speeds shovel loading... reduces spillage.



**Job No. 1** Cutting 70,000-yd. by-pass for U. S. 1 around New Haven business district, each of these 35 m.p.h. C Tournarockers hauled 600 pay yds. of sandstone per day on 2000' cycles. Entire job was only 1700' long, with all excavation made at this end of the area.

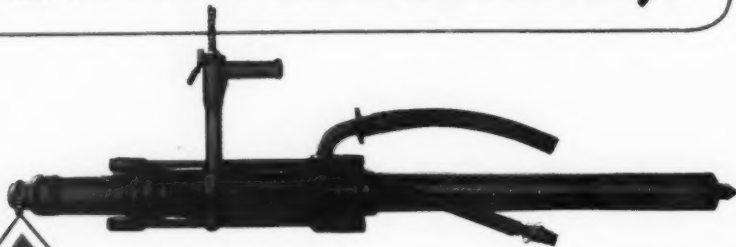


**Job No. 2** To relocate Rt. 109 near Watertown, Tournarockers moved 40,000 yds. of rock and 15,000 yds. of gravel on very short hauls (average, 500 ft., one-way). "They're the best hauling units I've seen for limited working areas," says Master Mechanic Phil Onuparik.

**HIGH SPEED on RUBBER PLUS TRACTION ADVANTAGES of a CRAWLER**



HERE'S PROOF THAT  
*Only BLUE BRUTE Stoppers  
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**BETTER BALANCE**

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**BLUE BRUTE  
 EXCLUSIVE**

If you've never realized before how much stoppers differ in the vital matter of *balance*, look at the results of this simple test, made on the Blue Brute Self-Rotating WR-31 and its two leading competitors. When the three stoppers were suspended by their handles, the following weights on the chucks were required to

bring each chuck to horizontal:

- Blue Brute — 33 lb.
- Stoper A — 24 lb.
- Stoper B — 0 lb.

With its operating handle set well above the center of gravity, the Blue Brute WR-31 has by far the *best working balance* for easy handling. Wrestling with a top-heavy stopper slows a runner down, sends your costs up. Give him a *correctly balanced* WR-31 and he'll make up for lost time!

**POSITIVE-ACTING VALVE**

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**BLUE BRUTE  
 EXCLUSIVE**

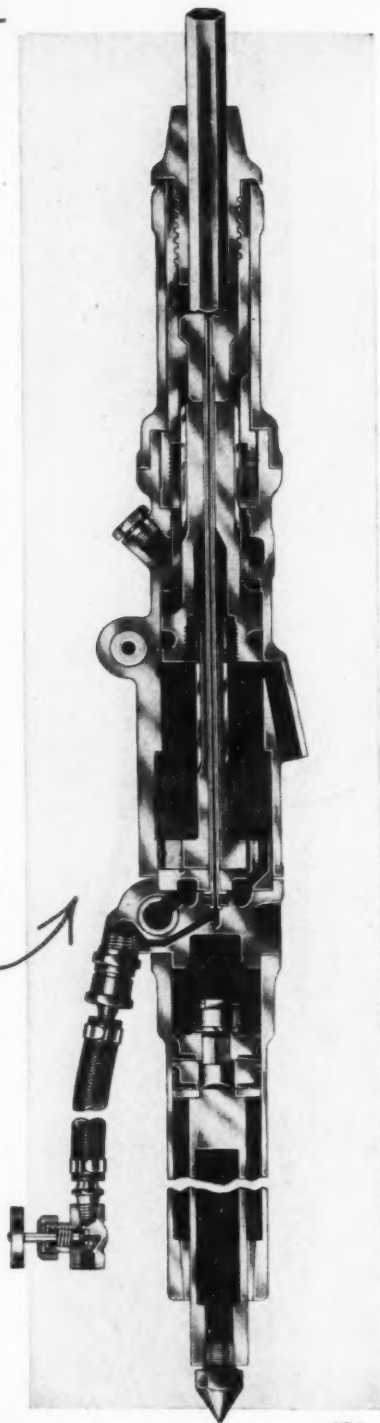
Sleeve-type, with large bearing surfaces, for minimum wear over extra-long service life. The leakproof end

seats improve with age, while circumferential laps keep air from reaching both ends of the piston hammer at any stage of the cycle. And the port thrown valve both ways assures positive action on the hammer on both forward and rearward strokes. Typical of Worthington leadership in rock drill design, this jet valve keeps the WR-31 drilling faster and cleaner on very little air!

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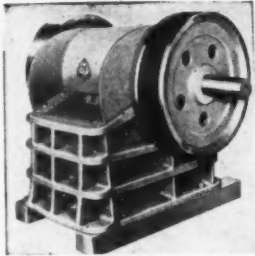


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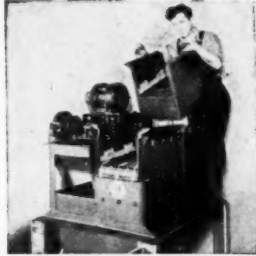


Semi-Portable Compressors. Drifters with Feed Motor Incorporated. Drifters with Feed Motor on Shell. Hand-Crank Drifters. Stoppers. Hand-Held Rock Drills.

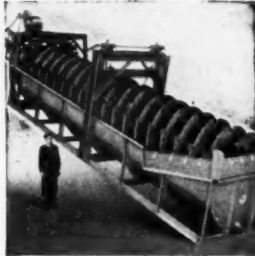
Let on-the-job demonstration prove to you that there's more worth in a Blue Brute. And write for literature describing the complete line of Blue Brute Mining Equipment.



Denver Force Feed Jaw Crusher



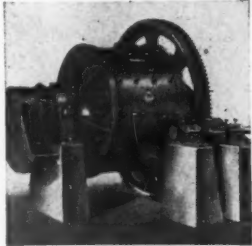
Denver Mineral Jig



Denver Cross-Flow Classifier



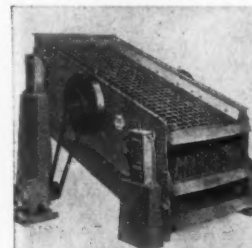
Denver "Sub-A" Flotation Cells



Denver Steel Head Ball Mill



Denver Disc Filter

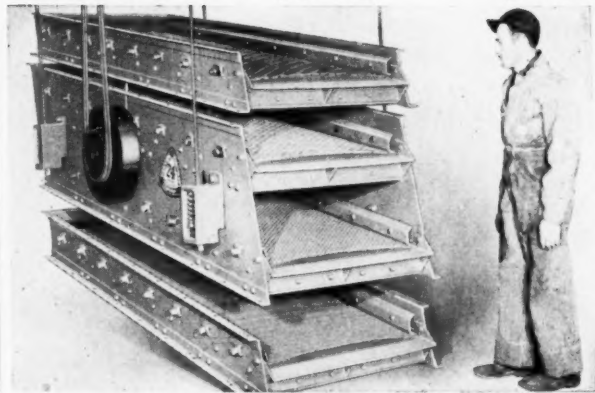


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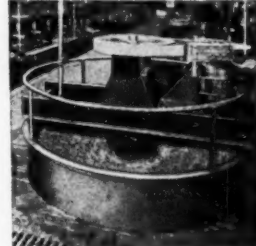
**Save Up to 50% HP ...** due to four point suspension and only two bearing drive. Available in floor or overhead mounting. Drive from either side of machine. "A patented mechanism."

**Efficient Selectivity up to 28 mesh ...** because of true "floating circle" motion, entire screening surface is utilized without dampening and dead spots.

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THESE are days of grave concerns . . . of conservation and mobilization for strengthening the nation's defense—for the survival of our national economy—for the continuance of maximum production effort in the metallic and non-metallic mining programs—for the keeping of every home-front machine in condition to stay on the job until its replacement again becomes a normal procedure.

That includes *your* equipment and emphasizes *your* responsibilities. To benefit fully from the productive life that has been built into your "Caterpillar" equipment, you must be alert to its needs as time and hard usage take their toll in wear and depreciation. For instance:

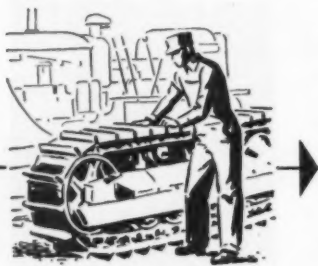
#### How are your "Caterpillar" track shoes?

Tough as they are, they can't battle rocks, shale, jolts and grinds forever. Growing shortages in the premium steels that go into them may make early replacements difficult—and extra care of track parts something to think about.

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**YOU'RE THE DOCTOR.** Check those sprockets, grousers, rollers, idlers, pins, links and bushings. Proper track adjustment minimizes wear. Sprockets may need switching from side to side, and pins and bushings need turning, to provide new wearing surfaces. Shoes serve longer if you have worn grousers built up before excessive wear occurs.

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# WORLD MINING

The International Department of MINING WORLD

## INTERNATIONAL PANORAMA

**LONDON**—ECA has given \$7,700,000 to Great Britain for territorial developments to expedite shipment of critical materials. Railroads will be built in the Gold Coast and coal developed in Nigeria.

**SANTIAGO**—The Kennecott Copper Corporation has formed a new firm, Agencia de Ventas de Metales Limitada (Avemet), to sell copper from the corporation's Braden mine.

**CHICAGO**—The Chicago & North Western Railway Company is installing Geiger counters on all its trains operating in nine states. Employees will ride the trains and use the counters in searching for uranium deposits along the right of way.

**ROME**—Italian production of mercury ore in the first quarter of 1951 was 48,377 tons compared to 34,594 in the corresponding 1950 quarter.

**MEXICO CITY**—The Export-Import Bank of Washington, D.C., has granted a credit of \$5,000,000 to the Nacional Financiera, S.A. of Mexico to finance a steel plant expansion of the Altos Hornos de Mexico, S.A. at Monclova, Mexico. Output will be increased from 115,000 tons to 185,000 tons of finished steel per year.

**FONTANA, CALIFORNIA**—The Kaiser Steel Corporation broke all-time production records for seven mill products during May.

**WASHINGTON**—Export and domestic shipments of molybdenum concentrates have been placed under complete allocation. Written authorization of DMA is now necessary to buy or sell concentrates.

**WINNIPEG**—Surveys have started for the 155-mile-long standard gauge railroad to be built from Sherridon to Lynn Lake, Manitoba, to serve the nickel mining area at the latter point.

**KELLOGG, IDAHO**—The Bunker Hill & Sullivan Mining & Concentrating Company has started a \$1,000,000 improvement and expansion program at its lead and zinc smelters.

**CLEVELAND**—The Hanna Coal & Ore Corporation has agreed to deliver to the Bethlehem Steel Company over 30,000,000 tons of Labrador-Quebec iron ore over a 25-year period. Bethlehem will accept delivery of the first ore in late 1954, at Seven Islands, Quebec. The contract is the largest iron ore contract ever made.

**NEW YORK**—Production of expanded perlite by United States companies in the second quarter of 1951 reached an all-time high—1,110,250 four-cubic-foot bags.

**BRUSSELS**—The Belgian government, by decree, has created The Reserve Miniere du Luabala in favor of the Katanga Special Committee. The reserve covers 44,000 square kilometers in the Belgian Congo. An aerial map and geological survey of the area will be made to determine tin possibilities.

**OTTAWA**—The Canadian price for copper has been raised to 27.5 cents per pound, 29.5 cents in Canadian currency.

**NARVIK, SWEDEN**—New ship-loading facilities now permit iron ore loading at the rate of 2,000 tons per hour in vessels with up to 5,000-ton cargo capacities.

**OSLO**—The Gravalchalcopyrite mine is being reopened. Production will be started within one year and output will be exported.

**WASHINGTON**—The National Production Authority has limited sulphur consumers to 100 percent of their 1950 consumption and ordered producers to ship sulphur only when authorized to do so by NPA.

**TORONTO**—The deepest diamond drill hole ever drilled in Canada found iron ore 5,380 feet below the surface at the Helen mine of the Algoma Ore Properties, Ltd., Michipicoten, Ontario.

**GABBS, NEVADA**—Basic Refractories, Inc., has placed its new 400-foot-long rotary kiln in operation to produce "dead-burned magnesite." The kiln is the largest magnesite-burning unit in the world.

**BOMBAY**—Construction of a pilot plant to produce beryllium and its alloys is planned by the Indian National Metallurgical Laboratory at Jamshedpur.

**NOUMEA, NEW CALEDONIA**—Lehman Brothers, New York, New York, and Compagnie Caledoniene des Metaux have received advances of \$737,000 in dollars and \$417,000 in counterpart francs to build a chromite concentrating mill and purchase mining equipment and other supplies.

**WASHINGTON**—The National Shipping Authority has allocated eight or nine ships to load iron ore at North African ports for transportation to United Kingdom ports.

**OSLO**—The Norwegian government has announced plans for the construction of a new aluminum plant at Sunndalsora with a capacity of 40,000 tons per year.

**MEXICO CITY**—The government of Mexico will not export any Mexican-mined silver for the remainder of 1951. Mexico is the world's largest producer with 1951 output estimated to reach 38,000,000 ounces.

**LONDON**—Great Britain has called a conference with Commonwealth nations for September to discuss output and supply of strategic raw materials.

**MELBOURNE**—Uranium mineralization has been found for the first time in the state of Victoria. The discovery was made 150 miles northeast of Melbourne.

**LONDON**—Kurupung Placers, Limited, has received \$133,000 from ECA for exploration for industrial diamonds in British Guiana, South America.

**BRUSSELS**—An ECA loan for \$15,500,000 has been granted for development of the Belgian Congo. The loan negotiated by the Export-Import Bank is for 25 years with an interest rate of 3.25 percent.

**LA PAZ**—Patino Mines & Enterprises Consolidated, Inc., has formed a new subsidiary, Compania de Inversiones Mineras Patino, S.A., with a capital of \$1,000,000 for mining investment and development in Bolivia.

### Aerial Magnetic Survey Starts in Labrador

Aeromagnetic Surveys Limited of Toronto commenced flying operations recently on an airborne survey which will cover some 16,000 line miles in the southern end of the Labrador Trough area for the Iron Ore Company of Canada. The equipment being used includes an airborne magnetometer and other geophysical instruments, including a newly developed airborne detection device for radioactive minerals. The purpose is to outline extensions of known orebodies and to endeavor to locate new ones.

An amphibious Canso flying boat is being used to carry the magnetometer and other instruments. The aircraft is operating from the landing strip at Knob Lake. Flying is expected to take approximately four months to complete, and the magnetic data will be processed and compiled in the form of magnetic contour maps in the Toronto laboratories of Aeromagnetic Surveys Limited.

This is the largest aerial magnetic survey yet undertaken in the area of the major Quebec-Labrador iron deposits. A survey of 3,000 line miles was carried out by the same company earlier this year at the Northern end of the Trough near Ungava Bay for Fenimore Iron Corporation.

### Altos Hornos Receives \$5 Million to Expand

Expansion of Cia. Minera Altos Hornos de Mexico's steel mill at Monclova, Coahuila, Mexico, will be financed by a credit authorized by the Export-Import Bank of Washington, D.C., for \$5,000,000. The credit was actually authorized to the Nacional Financiera, S.A., the Mexican governmental agency.

In 1942 the Bank authorized \$6,000,000 and in 1945 increased that amount to \$8,000,000 for expansion of the Altos Hornos plant. The present proposed expansion includes improvements to the blast furnace, a new and larger open hearth furnace, a new hot strip mill and further processing and tin plate facilities. Finishing capacity will thus be raised from 115,000 tons to 185,000 tons yearly.

### New Caledonian Chrome Mine Assisted by ECA

Up to \$737,000 and the equivalent of \$417,000 in Marshall Plan counterpart francs have been advanced to Lehman Brothers of New York City and the New Caledonia Company of Compagnie Caledoniene des Metaux by ECA to boost output of chrome ore from New Caledonia Company's property. To repay the U.S.A. the firm will ship it chrome concentrates, beginning not later than December 31, 1952, and ECA will make direct purchases of the ore with its five percent share of French counterpart francs.

The mine will be equipped with a new mill, storage and loading facilities, power plant, shops and other equipment and machinery.



A slusherload of ore comes to the RTC block, the haul chain pulls through on the sheave wheel proper, and the drop chain passes downward between two teeth of the sheave block. The slusher is just starting to turn.

## ROUND-THE-CORNER SLUSHING

**This field report indicates that the Round-The-Corner system will simplify cross-slushing installations and reduce costs**

To extract ore from the stopes of many flat-veined deposits and also from steep-vein deposits, operators are forced to cross-slush ore to direct it into the loading chute or finger raise which will transfer it to a main-haulage level. The reason for cross-slushing is simply that the ore cannot be slushed in a single straight line from its point of rest to the point of transfer.

The Pacific "Round-The-Corner" sheave block, known as the RTC, is a new approach—a mechanical approach—to the solution of cross-slushing problems. The RTC block enables the operator to cross-slush ore from a single setup of a conventional double-drum slusher hoist. New in concept and rigidly patented by its manufacturer, Alloy Steel & Metals Co., of Los Angeles, California, the RTC is a simple mechanical unit, but one which, as one operator says, "you have to see working in order to believe it will work."

### Cross-Slush at the Fault

This investigation of the mining potential of RTC installations was made at an underground mine, a vein deposit in the United States. The mine, one of the first to install RTC's, has three of the new blocks in service and has tested them for performance under operating condi-

tions; no comparative cost figures are yet available.

The orebody at this mine is consistent strike-wise for a considerable distance. The vein, dipping at approximately 80°, is five to seven sets (25 to 35 feet) in width, and is cut by numerous horizontal post-mineral faults which offset the vein by approximately 20 feet.

Square-set slot stoping is the system used for mining. If the vein is not cut by a fault between the active stoping area and the haulage level, ore flows by gravity from the stope to chutes on the haulage level. However, if the vein is cut by a horizontal fault between the active stoping area and the haulage level, ore from the five to seven sets of width must be collected to a lane in the upper portion of the vein and then cross-slushed to the slot-orepass in the offset lower portion of the vein; it is in these places that the RTC system was applied.

### Sheave Has Teeth

The RTC assembly consists of a boom projecting horizontally from a post (or rib) with a sprocket-like sheave wheel riding under the boom. The RTC unit on the haul line consists of a 58-inch length of  $\frac{3}{8}$ -inch chain swiveled at either end; one swiveled end of the chain connects to the inhaul line, the other to the

backhaul line. Connected near the inhaul end of the haul chain, a  $\frac{3}{8}$ -inch drop chain about 16 inches long extends to the front connection of the slusher; a similar drop chain connects the haul chain to the rear of the slusher. In motion, the haul chain passes through the RTC sheave wheel, but the drop chains (which actually pull the slusher) pass downward between the sprocket teeth. The RTC was designed for use with double-drum slusher hoists up to 20-hp. and for slushers up to 36 inches in width.

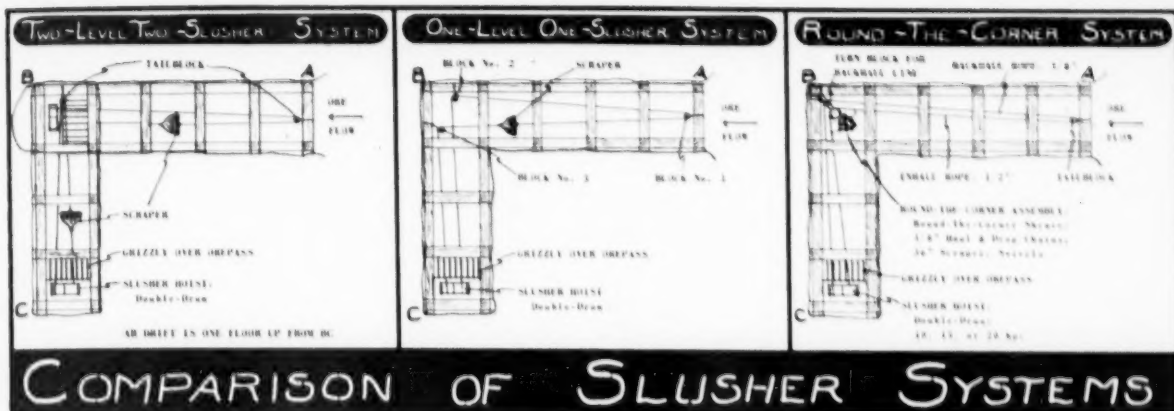
Other slusher systems which have been used previously instead of the RTC system are 1) the two-level two-slusher system, and 2) the one-level one-slusher system. (See cut.)

### Two-Level System

In the two-level two-slusher system, development consists of a drift, A.B. from the point of ore flow and a second drift, B.C., which is driven one floor below A.B. and transfers ore at C to the orepass which carries it to the main-haulage level.

**Evaluation of the two-level system.** Development of the two drifts requires removal of approximately one cubic-set more of rock than a one-level system. The stepdown (or step-up) at point B is a point which impedes the access of men and equip-





ment. The system requires two men, two slusher hoists, two slushers, two blocks, and two grizzly installations. A properly equipped two-level installation is an excellent ore producer: doubly equipped and doubly manned, it will produce more than twice as much ore as a single-level setup, but will not produce twice as much ore as an RTC setup.

#### One-Level System

Development of the one-level one-slusher system requires only driving of the drifts AB and BC and the installation of the grizzly at C. Ore is slushed from A to B until a pile has accumulated at B. Then, blocks Nos. 1 and 3 are opened, the haul line is brought in, and the scraper is operated between B and C using block No. 2 as the tailblock. The system is then re-rigged for slushing in drift AB.

#### Evaluation of the one-level system.

The system requires one man, one slusher, three conventional sheave blocks, and one grizzly installation (roughly half as much equipment as the two-level system). Two entirely separate scrapings are required to bring each scraperload of ore to the grizzly. Frequent re-rigging of the setup causes a loss of time which brings production and production per manshift considerably below the two-level and the RTC system.

#### RTC System

The Round-The-Corner system requires the same equipment and development as the conventional one-level one-slusher system except that block No. 3 of the conventional system is replaced by an RTC block and the haul line is equipped with haul and drop chains for connection to the slusher. The slusher should be short; a long slusher will be difficult to turn at right angles in a single lane of square sets. Also, the slusher lip should be so formed that

it gathers ore well and will not lose its load in turning the corner. Another important point is that the swivels at either end of the haul chain must turn freely under load so that rotary stresses in the haul rope will not turn and kink the haul chain. An important control in installation is the height of the RTC block above the effective scraping floor.

A typical timed run to determine the capacity of the RTC setup under operating conditions showed that the RTC made 54 round trips with a 36-inch slusherload of ore in one hour; the length of run was 45 feet (six sets in a line and three sets crosswise). Each trip brought in approximately 350 pounds of ore, so the hourly production was 18,900 pounds or about 9½ tons, a figure which compares favorably with slushing in a straight line for 45 feet.

#### Evaluation of the RTC system.

Further along in the turn, the slusher points toward the operator with a full load of ore. The sheave is installed by cinching the bracket on the boom to the post, suspending the rear end of the boom from the back, and properly positioning the block on the RTC boom.





The tramway in operation loading a ship with pyrite.

## UNIQUE SHORE-TO-SHIP AERIAL TRAMWAY FOR CYPRUS MINERALS

In 1938, the Hellenic Mining Company, Ltd., operator of large mines on the Island of Cyprus, placed an order with the British Ropeway Company Limited of London, England, for a bi-cable type of aerial tramway. The tramway was to be designed and built to carry pyrite from an on-shore storage area to ocean-going ships anchored in deep water off shore at the port of Yassiliko.

The loading and discharge terminals subsequently have been enlarged and the tram now transports four products—pyrite, gypsum, stucco and plasterboard. A description of the original plant together with the additions and changes has been written by an engineer on the BRECO staff.

### Tram Built For Pyrite

From a processing plant close to the shore, pyrite is delivered by means of an elevated conveyor to an opened stocking site. Here the material is allowed to accumulate steadily until an empty ship arrives off shore. The pyrite is then rapidly

reclaimed by drag-scrappers and piled against a retaining wall in which there are outlet holes. On the op-

Buckets are loaded automatically from balanced hoppers.



posite side of the wall, chutes are fitted over the holes through which the material flows, under control, into tram buckets suspended from carriages which run on a shunt rail circuit. The circuit is part of the loading station.

As each bucket is filled, it is allowed to proceed along the shunt rail to the exit side of the station, where, at the correct time interval, its carriage automatically becomes engaged with a moving traction cable. Under the control of the cable the bucket runs smoothly from the shunt rail onto a fixed track cable and travels along at nearly 1,200 feet over the sea to the unloading terminal.

The unloading terminal comprises an elevated steel structure resting on a concrete cylinder which is set on a concrete base keyed to the ocean floor and filled with ballast. Carriages, on arrival at this station, run automatically off the track rope on to a rigid shunt rail, automatically negotiate a return terminal sheave and are returned to the

loading station via a second track rope.

On their way around the terminal, the rotating buckets are tripped and their contents discharged into an open hopper. From the hopper the material flows down a hinged and radial chute into the ship's hold. A telescopic end-piece on the chute accommodates the changing level of the ship during loading.

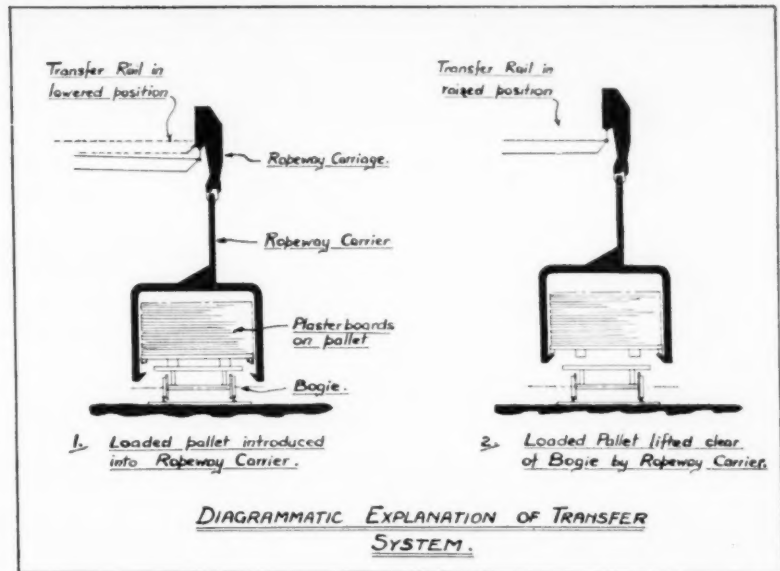
#### Capacity—200 Tons Per Hour

Maximum capacity of the tramway is 200 tons per hour, which is obtained by carrying 2,700 pounds per bucket at just under 25 second intervals. Only 23 hp. is required to power the tram which is controlled from the loading station.

The two track cables are tensioned by floating weight cages installed at the unloading terminal, 39 tons pull being applied to the outgoing rope and 12 tons to the return rope. Three intermediate towers are arranged between the loading station on the shore and the unloading terminal at sea, for supporting the track cables at the necessary clearance above the water.

In 1948, the owners of the tramway (now the Hellenic Mining Co., Ltd.) ordered an extension to the plant partly to suit an enlarged storage area and partly to enable gypsum to be carried in addition to the pyrites.

The extension took the form of a long loading loop with a shunt rail branching off the existing loading station and running parallel with the seashore. The loop, with a length of over 400 feet, was linked to the



main station by means of rail switches, which, when in operation, allowed incoming carriages to run on to and along the new extension before returning to the exit side of the main station.

Halfway along the new loop, a second group of loading chutes, similar to those originally installed, were built in order to allow the pyrite from the enlarged storage area to be delivered to the tramway buckets.

#### Automatic Bucket Loading

At the far end of the loop, where it was required to load gypsum into the tramway buckets from a bin, the BRECO patented system of

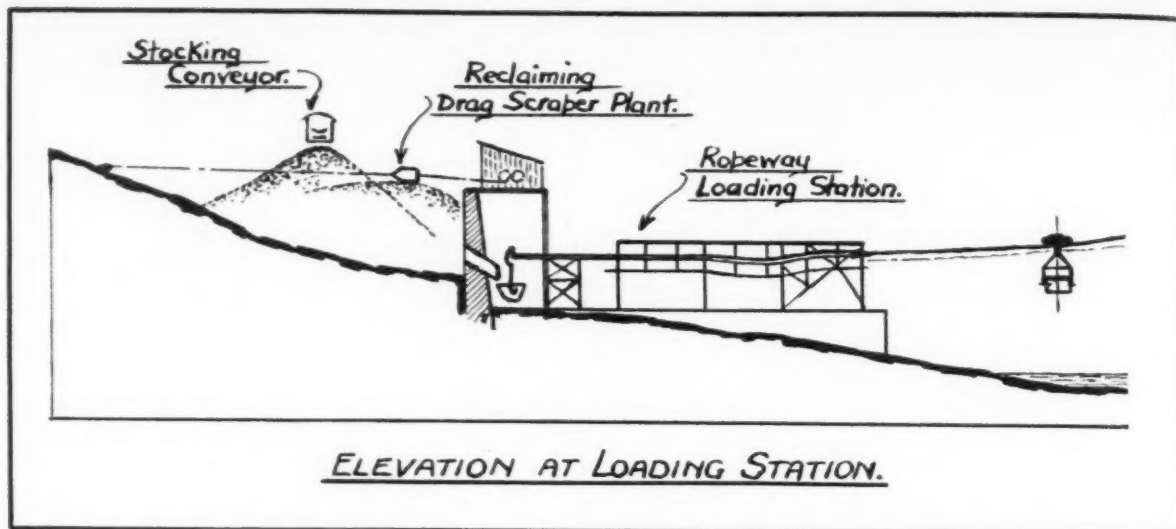
automatic loading was installed. Two balanced hoppers were used, each of sufficient size to hold a correct bucket load. When empty, each hopper rises a few inches, and when full, drops back against a stop. The movement is electrically interlocked with a vibrating feeder which is automatically set in motion or switched off according to the position of its hopper. Thus material from the bunker will start to flow into a hopper when empty, but will cease as soon as the hopper is full. The next empty car to arrive is then brought to rest in front of the hopper and rapidly filled by means of an electrically operated chute.

Another interesting device applied

Gypsum is hauled from the quarry to the storage area by narrow-gauge Diesel trains. From the pile, gypsum is loaded into tram buckets for delivery to ocean freighters.







to this plant concerns the loading loop itself. Since to build over 800 feet of overhead rail carrier was impracticable to assist the passage of the carriage, an auxiliary haulage unit was supplied in the nature of a continuously moving chain fitted with ratchet pawls. The haulage system ensured that the journey of the cars along the loop and back to the main station was entirely automatic, thereby saving greatly on operative labor. At the new loading chutes special mechanisms were installed to release the carriages temporarily from the haulage system and to bring them to rest as required.

#### Plasterboard Problems

The last modification to be required by the Hellenic Mining Co., Ltd. in 1950, was a provision for the handling of plasterboard and stucco by the aerial tramway.

As will be appreciated, plasterboard measuring 10 by 4 feet could not be carried conveniently in buckets. To provide a special carrier that could operate on the existing system and yet satisfactorily carry its unusual load was necessary. Further, sacks of stucco, or sheets of plasterboard, could not be loaded readily onto the tramway by means of the chutes mentioned above. Hence a separate system of loading had to be evolved. Again, it was not practical to deliver the

plasterboard or stucco into the ship's hold via the present hopper and chute, thus once more a new means of dealing with the loads had to be found.

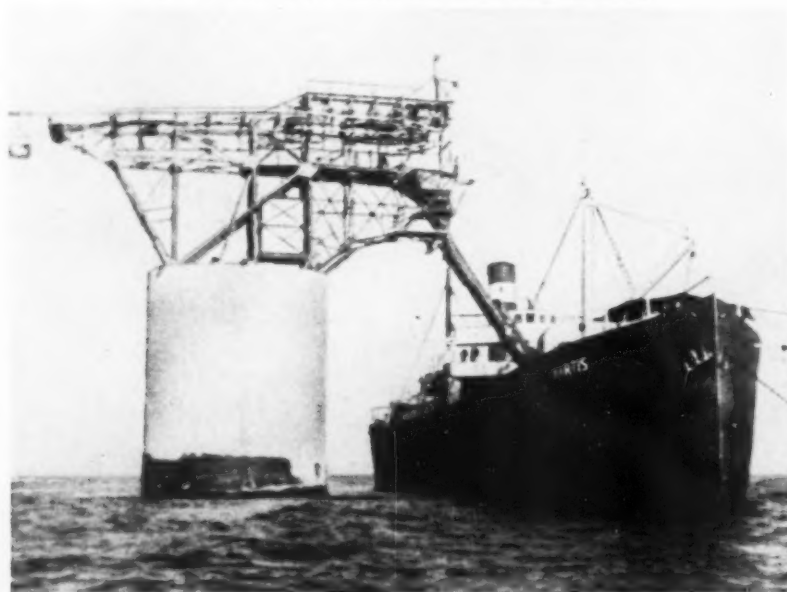
The solution finally approved was as follows: The plasterboard or stucco would be loaded onto pallets in the factory and trammed to the end of the extension loading loop. Here a BRECO Patent transfer gear would be installed which would allow each pallet to be introduced into a special ropeway carrier and lifted clear of its bogie car.

While the car was being returned to the factory for a fresh load, the pallet and its contents would proceed under the control of the auxiliary haulage unit to the main station from which, in due course, it would proceed to the unloading terminal.

There, upon arrival, the pallet would engage with a special roller conveyor mechanism and become freed from the tramway carrier. Once free, it would advance to a point clear of obstruction and become engaged with the hook of an overhead runway. The runway, built on top of the ropeway terminal and cantilevered forward, could then convey the loaded pallet out over the ship and lower it down into the ship's hold. In order to provide an ample time cycle, engineers decided to employ twin runways, each one dealing with alternate loads as they arrived.

The final installation, bearing in mind the diversities of its duties and the complications arising from the necessity of adapting an existing plant, has operated very satisfactorily.

Pyrite is trammed over the sea and chuted into ships' holds.



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## HEAVY-DUTY TRUCK TIRES ARE PROTECTED BY "ROCK KICKER" AT MINNESOTA IRON MINE

Prolonged life is given to the big, expensive tires used in heavy-duty openpit haulage by the Oliver Iron Mining Company in its Mesabi Iron Range operations by a simple, inexpensive device commonly called a "Rock Kicker." The gadget, basically a pointed steel bar hung down between the dual tires on the big trucks, is cheap and easy to manufacture and install, requires no maintenance and is foolproof. Yet it removes rocks that become lodged between the tires on the first revolution of the wheels and eliminates entirely this cause for wear and bruising of the carcass.

Tires used on the haulage units of openpit metal mines are subjected to conditions that are about as severe as any to be found. The trucks carry exceptionally heavy loads over uneven roadbeds that are often strewn with spilled rock that is newly broken, has sharp edges and is extremely abrasive. A major cause of tire damage is the lodging of rocks between the dual rear tires. As the tires flex under the jolting heavy load, severe cutting and bruising results. Oliver's Rock Kicker seems to have corrected the condition satisfactorily.

### Mounted on Dump Body

As stated, the device is primarily a pointed steel bar that hangs between the two tires. The photograph clearly shows how the bar is mounted on the dump body so that its operation is automatic and trouble-free. The sketch gives exact details of its manufacture. The idea is not patented, and the company is happy to pass it along to other operators.

The Rock Kicker is manufactured in the company shops from a 1 by 4-inch steel bar 3 feet 4 inches long. The top corners of the bar are rounded slightly and the lower end is saber-pointed by cutting a flat arc from a point 12 inches from the end on one side to the lower corner on the other side, a simple cutting and grinding operation for the average machine shop. There is no reduction in the bar's thickness at any point. A 1¼ inch hole, for mounting, is bored through the bar on its center line at a point 2¼ inch below the top.

### Works Every Time

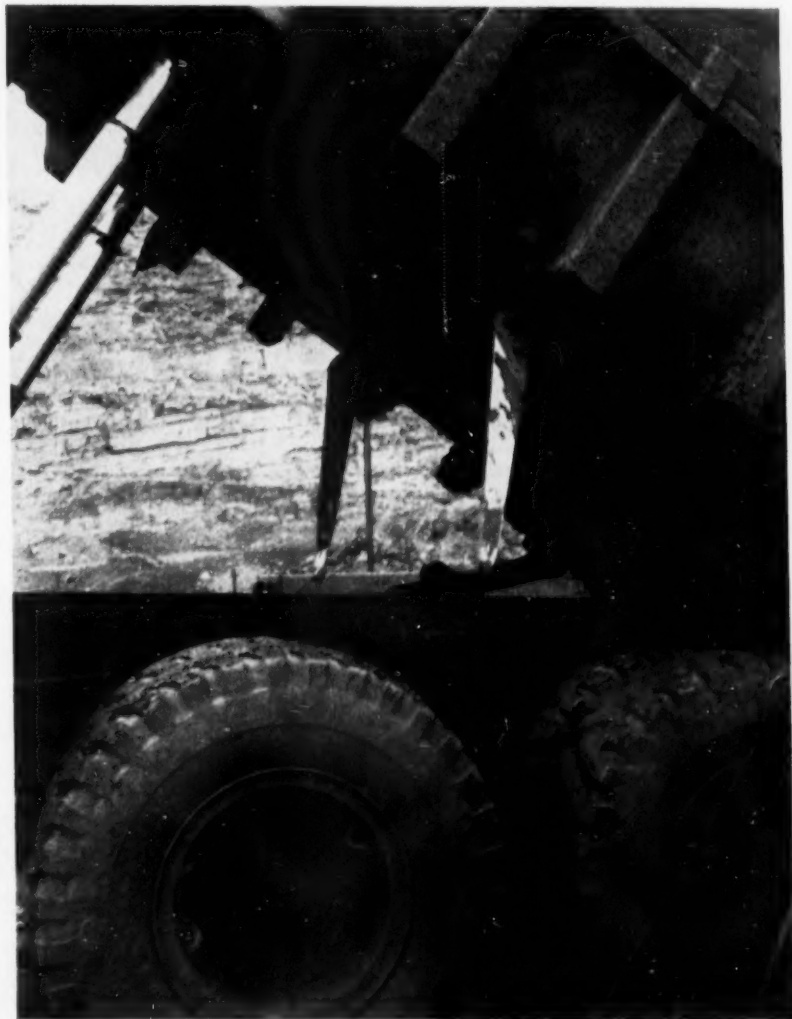
The Kicker is mounted on the truck by welding a bracket onto one

of the body's ribs and passing a bolt through both bar and bracket so that the bar will swing. When the body is raised, the bar swings free and clear. When it is lowered, the bar hangs down between the dual tires with its point below the center line of the tires. This places the bar in such a position that when a rock is picked up between the tires the revolving wheels bring it up against the bar, pressing the lower end of

the bar against the drum of the wheel to form a rigid barrier between the wheels. The rock is pushed outward with all the force of the revolving wheels. It works every time.

One Kicker is required for each set of duals, and there seems to be no reason why the device wouldn't work efficiently on all types of haulage and earth-moving equipment that rolls on rubber.

This "Rock Kicker" for removing rocks that lodge between dual tires and cause damage is in general use at the openpit mines of the Oliver Iron Mining Company and some other companies on the Minnesota Iron Ranges. This photo shows the "Kicker" mounted on one of Oliver's big "six wheeler" Mack trucks with a 30-ton hydraulically actuated dump body. The operation is fully automatic with the bar dropping into its proper place between the tires when the body is lowered. Manufacture is simple and inexpensive; maintenance is almost nil.



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## ACTIVITIES OF INTERNATIONAL MINING MEN

**E. Balfour Scott**, editor of *MINING JOURNAL* of London, was honored at a celebration of the staff and directors recently for his 50 years service with the *JOURNAL*, which, with 116 years of existence, is said to be the oldest technical journal in the world. The celebration also honored **F. V. Walters**, advertising representative, for his 50 years with the firm, and **E. S. Hooper**, also an advertising representative, for 21 years service.

**Benjamin Franklin Fairless**, president of the United States Steel Corporation, received the honorary degree of Doctor of Laws at the 125th annual commencement exercises of Trinity College, Hartford, Connecticut, recently. The degree was conferred by **G. Keith Funston**, president of Trinity and president-elect of the New York Stock Exchange.

**C. B. Whittemore**, chief metallurgist for the Deloro Smelting and Refining Company Limited of Deloro, Ontario, Canada, recently attended the cobalt sessions of the International Materials Conference in Washington, D. C.

**T. H. McClelland**, formerly field manager for Asnazu Gold Dredging Ltd. at Cali, Colombia, South America, has been transferred to the Pato Consolidated Gold Dredging Ltd.'s properties, Barranquilla, as assistant general manager. Asnazu, Pato and Nechi Consolidated Dredging Ltd. are all interests of the Canadian firm, Placer Development, Ltd.

**H. B. Cooke, Jr.**, is now on the staff of Graff & Kruger, mining geologists with offices in Lima, Peru. He has been with the Northern Peru Mining & Smelting Company at Trujillo.

**Robert Devlin** has resigned as manager of Stadacona Mines Ltd. at Rouyn, Quebec, Canada, although he will continue to act as consultant for the company. He has become mining consultant for the Montreal firm, Robertson and Morgan. At Rouyn, **Arnold Sobering**, formerly mine superintendent, will take Devlin's place as mine manager.

**Carl L. Alt**, who has worked in Chile, in Arabia and in Colorado, U. S. A., for various mining companies, has left his latest residence at Denver, Colorado, for Guatemala. He will be mining engineer there for a lead-zinc company, Compania Minera de Guatemala, at Coban in Central Guatemala.

**Frank G. Forman**, consulting mining and economic geologist, 15 Congdon Street, Claremont, Western Australia, is one of the members of a syndicate which would like United States' capital investments in projects to work wolframite deposits in Western Australia. Difficulties in obtaining boring and other plant equipment are holding up development and the syndicate would agree to American terms if investments are forthcoming.

**P. B. Nairn** has resigned from the staff of the Emperor Gold Mining Company to accept an appointment as mill superintendent with Raub Australian Gold Mines, Pahang, Malaya.

**R. F. Stokes**, British Lord Privy Seal, has been in Washington, D. C., to discuss the British need for adequate quantities

of metals to fulfill rearmament requirements.

**Lewis C. Wood**, formerly test engineer, brick plant, is now smelter test engineer and Cottrell foreman for Braden Copper Company, Rancagua, Chile.

**H. V. Echols**, formerly general manager for the Demerata Bauxite Company, Ltd., Georgetown, British Guiana, is now managing director.

**Arnold H. Miller**, consulting engineer of New York, New York, has returned from an examination and appraisal of the Pinar del Rio district in Cuba. Miller maintains connections with associate offices in Argentina, Bolivia, Chile, Colombia, Mexico and Spain.

**B. Carthew**, formerly of Goodwood, South Australia, has joined the underground staff of Lake George Mines Ltd. at Captains Flat, New South Wales, Australia.

**Sr. Ing. Andrea Giordana**, who was working for the S. A. Montecatini in Italy, is now with the Universidad Nacional de Tucuman, Ramirez de Velasco 438, at Jujuy, Argentina.

**A. H. F. Graadt van Roggen** is working at Trujillo, Peru, where he is a mining engineer with the Northern Peru Mining and Smelting Company.

**F. M. Jefferson** has been elected a vice president of the Australian Institute of Mining and Metallurgy for 1951-1952. He is general manager of Coal Cliff Colliery Ltd., Clifton, New South Wales. The Institute recently presented an honorary membership to Emeritus Professor **E. W. Skeats**, formerly professor of geology at the University of Melbourne.

**W. Pollock** has joined the staff of Reeves Macdonald Mines Ltd. in the

**WALTER H. ALDRIDGE** has been elected chairman of the board of the Texas Gulf Sulphur Company, one of the world's biggest sulphur producers, according to an announcement from the company's New York offices. Fred M.

Nelson has been elected president of the company and Thomas S. Lamont has been elected chairman of a newly-formed executive committee. Other executive committee members are Erle V. Daveler and Lowell C. Wadmond. Aldridge had been president of Texas Gulf since it began operations 32 years ago. Nelson had been in charge of many of the company's field operations since he joined the staff in 1927. Lamont is vice president and a director of J. P. Morgan & Company, Inc. and Daveler is vice president and a director of the American Zinc, Lead & Smelting Company.



Salmo district, British Columbia, Canada. He had been with the Island Mountain Mines, Barkerville, and has been succeeded there by James Taylor.

**Ir. J. van de Velde**, mining engineer, has been made head of the mining research department of S. A. Belgometal, 36 Rue Ravestein, Brussels, Belgium. He had been working at Arnhem, Holland.

**F. E. Moloney** has been elected president of the Chamber of Mines of Victoria, Australia. He had been counselor since 1947.

**D. D. Morris** has been made manager of the research and development division of The Consolidated Mining and Smelting Company of Canada, Ltd., Trail, British Columbia. He had been general superintendent of the division; the job of manager is a newly created position.

**A. L. Gilmour** was elected president of the Rhodesian Chamber of Mines at the annual general meeting recently held in Southern Rhodesia.

**A. A. C. Mason** has joined the staff of the Department of Mines in South Australia as a geologist. He had been senior research officer with North Broken Hill Ltd.

**Marcel Guiguet** has been promoted from chief engineer to mine superintendent by the Cariboo Gold Quartz Mining Company, Ltd., Vancouver, British Columbia, Canada. **C. D. Nicholson**, formerly with Kelowna Exploration Company, has been made line foreman.

**K. B. Bowden** has been appointed research metallurgist to Blue Spec Mining Company N. L. He will conduct investigations at the South Australian School of Mines on methods of treating antimony ore.

**Frank Birchall** has been made mine manager of Kingston Openport Gold Mines Ltd., Kingston, Queensland, Australia. He had been mine superintendent at Mt. Morgan Mines. **W. Holford** has been appointed mill superintendent at Kingston.



**JAMES K. RUSSELL**, center, general sales manager of the leader division, Eimco Corporation, Salt Lake City, Utah, U.S.A., is making a survey of company installations at Port Kembla, New South Wales, Australia. Pictured with him are **M. H. GUTTERIDGE**, right, sales manager, Tull Bryant, Ltd., Eimco agents for Eastern Australia, and **G. H. BANNISTER**, left, who was chief engineer of the E. R. and S. Company of Port Kembla, but since the picture was taken has accepted a position with Malcolm Moore, Ltd., Melbourne, Victoria.



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*S-A engineers drew on their complete line of equipment and 50 years' experience for a combination of efficient units to attain maximum output of diamond-bearing earth—recovery of one pound of diamonds involves moving approximately 15,000,000 lbs. of earth. Experience has proved conclusively that S-A Belt Conveyors have the capacity and stamina to handle such huge quantities of earth—at lowest cost per ton.*

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## INTERNATIONAL NEWS

### Tungsten Production Resumed in Korea

The Sam Dong mine in Korea has been reopened and is producing on a small scale, according to U. S. Government officials. The war damage at the mine affected surface workings mainly, especially the power plant. However, enough replacements of equipment have been made to make operation possible.

No rapid increase in output is likely as there is both a shortage of parts of machinery and of manpower.

### More Millions Go Into Labrador-Quebec Iron

The United States Defense Production Administration reports that the Iron Ore Company of Canada, an American company in which The M. A. Hanna Company of Cleveland, Ohio, is interested, is authorized to write off 75 percent of \$85,750,000-worth of new or expanded facilities to produce iron ore. The Iron Ore Company is developing iron ore deposits in Labrador and Quebec and is constructing a 360-mile railroad from Seven Islands on the St. Lawrence River to the deposits.

Meanwhile the Hanna Coal & Ore Corporation, a subsidiary of The M. A. Hanna Company, has entered into what is believed to be the largest iron ore sales contract ever made, whereby it will deliver to Bethlehem Steel Company in excess of 30,000,000 tons of Labrador-Quebec ores over a period of 25 years. Shipments are expected to begin late in 1954. Bethlehem will accept deliveries at the Seven Islands terminal of the railroad.

### ECA to Aid England in Territorial Development

The Economic Cooperation Administration, in an effort to boost the flow of critical raw materials to the United States and Western Europe, announced a \$7,700,000 grant to Great Britain for territorial development. The dollar aid will come from ECA's special reserve fund for overseas development and is part of an overall \$200,000,000 investment program which Great Britain is undertaking to carry out this year in her territories in Africa, Southeast Asia, and the Western Hemisphere.

Although direct economic aid to the United Kingdom was suspended on January 1 this year, aid to the overseas territories of the United Kingdom is being continued as found necessary.

ECA funds will be used in support of the following projects: \$1,400,000 for construction of a rail link in the African Gold Coast which is the world's second largest producer of manganese ore and which exports diamonds, bauxite and silver besides; \$952,000 for construction of wharves in North Borneo; \$455,000 for coal development in Nigeria, partly because the coal is needed to increase lead-zinc and sulphur production; \$4,100,000 for roadbuilding in Tanganyika, Northern

Rhodesia and Nigeria—in Northern Rhodesia the roads will facilitate copper production among other things; \$621,000 for rice development in British Guiana; and \$210,000 for replacement of ferries with road bridges in Sierra Leone.

### Kilembe Proposing 3,800-Ton-Daily Production

The Kilembe copper-cobalt property in Uganda, Africa, under development for several years, will be put on a producing basis if enough money can be raised. This plan was announced by Thayer Lindsley, president of the Canadian company, Ventures, Ltd., at its annual meeting recently. Ventures subsidiary, Frobisher, Ltd., in cooperation with the British-controlled firm, Rio Tinto Company, Ltd., are the joint operators of the Kilembe property, which is registered in Uganda as Kilembe Mines, Ltd., and is located 250 miles west of Entebbe, Uganda's capital.

The proposed plans of the two operating companies are as follows: To install a milling plant of 3,800 tons daily capacity; to spend a total of \$33,000,000 or about £11,000,000 (which includes work already completed) to bring the mine into production, with the two companies paying 25 percent of the total and the remaining 75 percent obtained as a loan, possibly through ECA; to start by openpit mining, later converting to underground mining; and to install the necessary power lines.

Exploration and development already completed at the mine and their results are as follows: About 15,000 feet of underground workings (from adits) and 50,000 feet of surface and underground drilling have been finished—a program of 1,000 feet of underground work and 4,000 feet of diamond drilling per month is now in effect; ore reserves as of March 31 in developed ore amounted to 4,417,000 tons containing 2.05 percent Cu and 0.171 percent Co; in probable ore, 5,607,000 tons of 2.25 percent Cu and 0.154 percent Co; and in inferred ore, 4,030,000 tons of 1.54 percent Cu, 0.133 percent Co. Work since then has increased the total of proven and probable ore by about 1,000,000 tons, according to D. C. Sharpstone, Frobisher's African manager.

### GEOMINES and U.S.A. Plan Lithium Pilot Plant

GEOMINES (Cie. Geologique et Miniere des Ingenieurs et des Industriels Belges) in agreement with the United States Government will build a pilot plant for the production of lithium at Manono, 250 kilometers north of Elizabethville, Belgian Congo. A larger, permanent plant is already being planned by U. S. atomic energy engineers, and, after its eventual installation, will be run by the Belgian company. Lithium is the key-metal in hydrogen bombs.

Ore for the lithium-metal plant will be spodumene,  $\text{LiAlSi}_2\text{O}_6$ , found in the Manono and Kitotolo pegmatites. It is most abundant in Manono pegmatite which contains 6.36 percent  $\text{Li}_2\text{O}$ . The spodu-

mine weathers and alters readily forming a kaolin-like product carrying 1.05 percent  $\text{Li}_2\text{O}$ . The pegmatites are in steeply dipping greyish schist. The pegmatites, laccolithic in form, are about five kilometers long and 50 to 800 meters in width. The Manono pegmatite crops out over a 1,200,000 square meter area and is 2.5 kilometers from Kitotolo. Cassiterite and tantalite-columbite heretofore have been the only commercial mineral of the pegmatites. The tantalite-columbite is about five percent of the cassiterite content. Cassiterite production in 1949 was 5,200 metric tons. A large scale modernization and expansion program is now underway which will increase mining to 1,500 tons per hour by 1952. Tin and tantalite-columbite are sold to the United States.

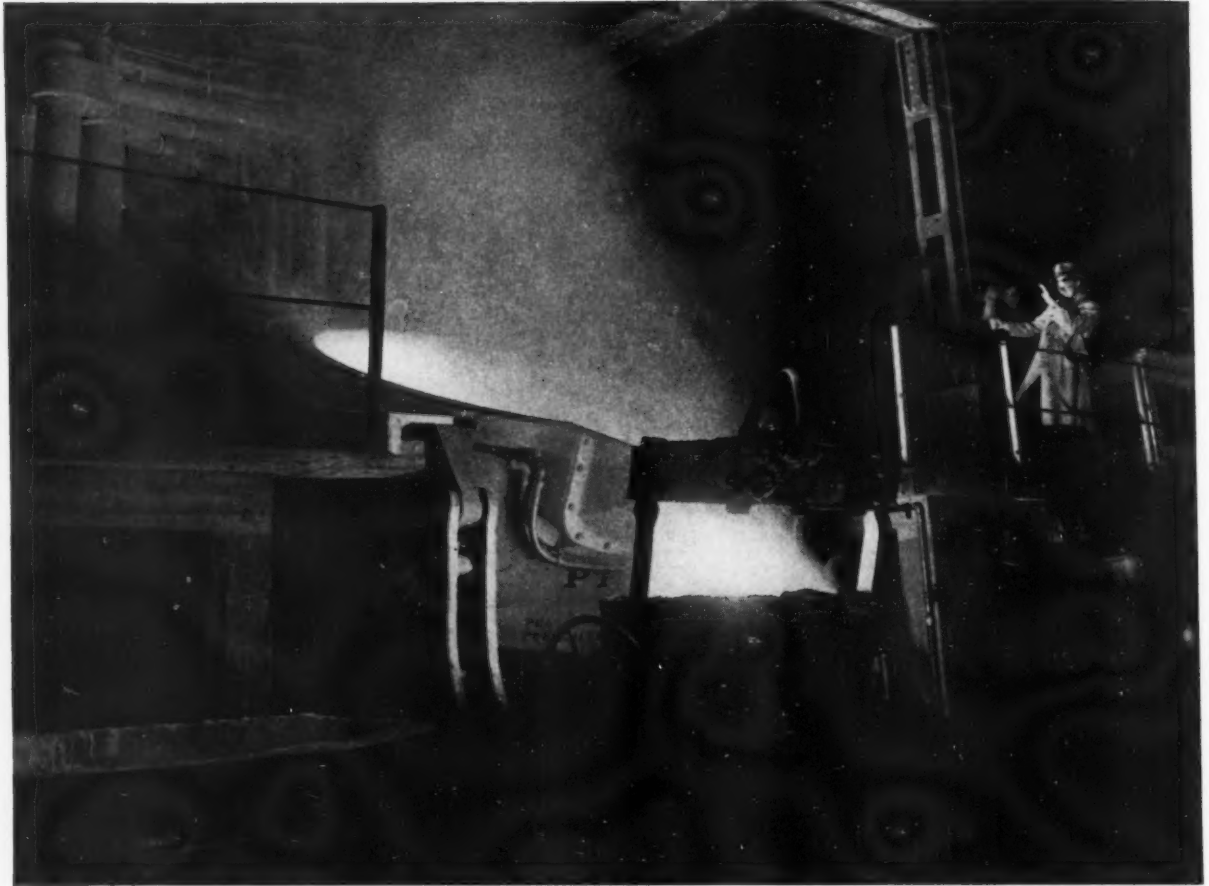
### Rebuilding Well Along at Philippine Mines

While the Philippine internal as well as the international situation has been adverse, several Philippine gold mines have made substantial progress towards resumption of operations. Notable among these is the Itogon Mining Company. Practically all its surface structures were destroyed during the war. The power plant has now been rebuilt and three 500-hp. diesel generating units installed. Housing for 500 men has been completed. The company's three-compartment shaft has been re-aligned and re-timbered to the 875-foot level. The 250-hp. hoist together with skips, cages and other equipment, have been rehabilitated and placed in operation. The 875-foot level drainage adit has been reopened to drain the mine workings. Construction of the new milling plant is well under way with operations expected to be resumed the latter part of this year, barring any unforeseen delays.

United Paracale Mining Company also is making definite progress in its rehabilitation program. Its main power plant with three diesel generating units, 1500 hp., has been rebuilt. Surface works have been repaired or rebuilt, and production may be resumed late in 1951.

Both Itogon and United Paracale are under management of Marsman & Company. A third mine under the same management, San Mauricio, also is due for resumption of mining operations during 1951, unless finances or delays in delivery of equipment prevent. Its 1300-hp. diesel power plant has been rebuilt. The difficult job of reopening the drainage tunnel has been accomplished. The three-compartment hoisting shaft has been repaired, and surface installations have been rebuilt.

A number of Philippine gold mines, which were substantial producers prior to the war, have not been able to devise rehabilitation programs on the limited funds received from War Damage Payments. Among such companies are Antamok, Syoc Consolidated, Masbate, Batong, Buhay, and Mambulao. Some of these, such as Suyoc and Masbate have rein-



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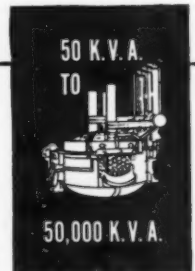
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## INTERNATIONAL

vested the proceeds from War Damage Payments, and sale of equipment and supplies in the securities of other companies, thereby becoming holding companies for the time being.

### New Tin Companies Formed In South West Africa

The Uis Tin Mining Company (South West Africa) Ltd. has been formed with a capital of 1,200,000 five-shilling shares, of which 1,000,000 will be issued. The company has purchased base-metal mining rights over an extensive area in the Omaruru district and prospecting claims in the Uis area, as well as housing, plant, machinery, and equipment. In addition, the company has entered into a participating agreement with Namib Tin Mines Ltd. and the Omaruru Tin Mining Company Ltd. under which the latter companies granted to Uis the right to receive 20 percent of the gross income to be received by either of those two companies if certain lease or mineral lease areas owned by them become productive.

Tin was first discovered in 1908 on the mining-right areas purchased by the Uis company, and concentrates have been produced continuously from 1922 to the present time, mainly from eluvial and alluvial deposits and also from the tribute workings of Natives, operating on the rich pegmatite outcrops. A pilot plant has been operating in order to investigate the average grade over bulk samples and the most efficient methods of extracting the tin from the enormous tonnage of pegmatite available. At a capacity of between 120 and 150 tons per day the pilot plant produces from seven to nine tons of metallic tin per month, yielding profit of between £4,000 to £5,000 per month. Based on the results so far achieved, plans are being made to treat 1,000 tons

of ore per day. The first 500 tons per day should be reached before the end of the current year, and the second by the end of 1952. In addition, output seems likely to be expanded by production from the eluvial and alluvial tin ore deposits still available.

Another company, the Arandis Tin Mines Ltd., has been formed with an authorized capital of 600,000 five-shilling shares to conduct mining operations over areas in the district of Swakopmund, South West Africa.

### ECA Aids Diamond Firm In British Guiana

Exploration for industrial diamonds in British Guiana, South America, has been aided by an advance of \$133,000 in dollars and sterling counterpart funds by the Economic Cooperation Administration to the Kurupung Placers, Limited, a company jointly owned by American and British interests.

Since 1947, Kurupung and its predecessors have invested over \$70,000 in exploration of its properties for industrial diamonds. If further exploration is successful, diamonds will be shipped to the U. S. stockpile beginning not later than January 1, 1953.



INDIA—Uranium-bearing ores have been discovered by the Directorate of Mines, Rajasthan, in the Aravalli Hills, about 20 miles from Udaipur.

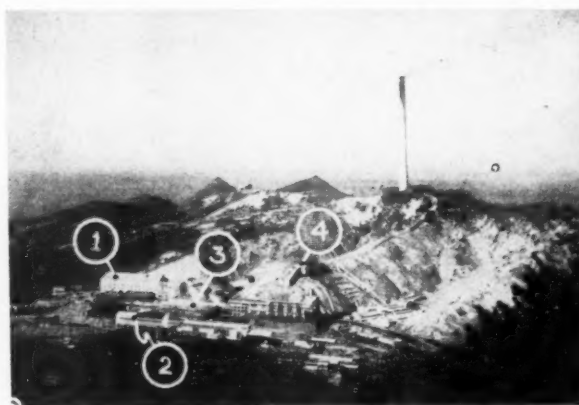
NEPAL—Another discovery of gold has been reported by R. S. Samford of

the U. S. Bureau of Mines. He has been surveying the Gandki River, said to be a large potential gold source.

BURMA—After ten years of war, rebellion and banditry, conditions are still unsettled but Burma's mineral trading position is beginning to improve according to G. S. Nicoll, chairman of the Burma Chamber of Commerce, who spoke at a recent meeting in Rangoon. The main line of the Burma railways is still cut and the *Bawdin* mines production amounts to a small quantity which has only just begun to be moved down by river transport, operating between Rangoon and Mandalay. Both the mine and mill at *Mauchi* are still on a care and maintenance basis and production is limited to a minute quantity obtained from tributors. The inability of both mines to take advantage of the very high prices now ruling is a considerable loss both to themselves and the Burmese economy. The European staff has returned to the Tavoy district and is running the mines by a remote control system since bandits still are active. This is not satisfactory as machinery is being damaged, planned programs are being ignored and a good deal of tin and wolfram stolen to take advantage of present fantastically high prices.

TURKEY—Complete 1950 production figures for several mines have been released as follows: *Guleman* chrome mine, 160,000 tons of ore and 7,000 tons of concentrate; *Ergani* copper mine and smelter, 11,700 tons of blister copper; *Keciborlu* sulphur mine, 6,000 tons; and *Divrigi* iron mine, 220,847 tons of ore. Production of copper at *Ergani* is scheduled at 14,100 tons in 1951 and the *Murgul* copper mine and smelter should attain planned output of 12,000 tons during this year.

Continued on Page 46



### NEW SULPHURIC ACID PLANTS AT JAPANESE COPPER SMELTERS

Greatly increasing Japan's sulphuric acid production, new contact sulphuric acid plants at these two Nippon Mining Company smelters have brought production up to approximately 6,400 tons of concentrated acid per month. The plants were built at less than estimated cost (actual cost: 300,000,000 yen from city bank loans and 388,000,000 yen of U.S. counterpart funds), have greater capacity than was anticipated, and have removed two-thirds of the sulphur dioxide from the flue gases. The Saganoseki copper smelter (left picture) on the

east coast of Kyushu island started production of sulphuric acid from smelter flue gas on January 31, 1951. Numbers in the picture indicate 1) the sulphuric acid plant; 2) the smelter proper; 3) the Greenwalt sintering machine; and 4) the Cottrell plant. The Hitachi copper smelter (right) in central Honshu island started production of sulphuric acid from smelter flue gases on February 16, 1951. Numbers in the picture indicate 5) the sulphuric acid plant; and 6) the smelter proper.

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- ★ **CHROMITE**
- ★ **COBALT**
- ★ **DIAMONDS**
- ★ **FLUORSPAR**
- ★ **MANGANESE**
- ★ **MOLYBDENUM**
- ★ **SULPHUR**
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## INTERNATIONAL

Continued from Page 43

**INDIA**—India and Spain have made an agreement whereby India will ship manganese ore, chrome ore, and carborundum, among other goods to Spain. Spain will export lead (pig and wrought) and mercury, among other goods.

**CHINA**—At the Hurei-nan coal mine in An-whi Province, production of coal on one recent day was said to be 11.85 tons per man per day for all men on the working face. In the Jah-wong coal mine in Shantung province on another day, a pneumatic pick was responsible for 258.75 tons of coal produced per shift. In the first quarter of 1951 production from 17 coal mines in northeastern China was said to be 104.7 percent of planned output.

**INDIA**—An initial shipment of 930 tons

of zinc concentrates recently was exported to Rotterdam, Holland, for smelting. The ore was mined at Zawar near Udalpur.

**INDO-CHINA**—If the Government of Cambodia approves, the Fuji and Yawata iron and steel companies of Japan will develop an iron mine in the state. Yearly output would be about 500,000 metric tons, to be shipped to the Japanese companies.

**INDIA**—Production of gold from the Harni mines at Raichur during March and April were 794 and 874 ounces respectively. Additional equipment is to be installed in the mines at a cost of 600,000 rupees and will more than double production. Production of copper by the Indian Copper Corporation in March was 655 tons, compared with 575 tons in February and 324 tons in January.



AFRICA

**SOUTH AFRICA**—The South African Minister of Finance has proposed that interest payments rank as amortization for taxation purposes, a proposal which should benefit the mines, particularly gold, to a considerable extent. According to H. F. Oppenheimer, the concession would be extremely useful now when stock exchange conditions made it necessary to borrow part of the money required for opening up new ventures. The mining companies were enabled to finance operations partly through the issue of debentures. Since this method of financing, however, had its disadvantages, and was limited in its scope, Mr. Oppenheimer recommended that interest payments should be treated in the same way as lease payments, namely, that interest incurred in the pre-production stage should be added to the total amount to be amortized. He also suggested that the Minister be given some discretion in fixing a rate of interest, in relation to market conditions at the time when the new mine was started and to the special conditions at a mine. In his reply, the minister stated that gold mining taxation had been excluded from the current investigation into income tax generally, but that he would always give consideration to the different aspects of all kinds of taxation, and that he was open to representations. The Finance Bill introduced allows gold mining companies operating on government mining leases to merge all expenditures and revenue resulting from the recovery of uranium, with expenditure and revenue resulting from gold mining, in the determination of profits. In determining profits, of which a share is payable to the state, in terms of a mining lease, the bill provides that the interest on money borrowed for the purpose of producing uranium may be deducted.

**FRENCH WEST AFRICA**—In Mauritania, *Frobisher, Ltd.*, the Canadian firm, has acquired an interest in iron ore properties, 225 miles from the port of Villa Cisneros in Rio de Oro and on the edge of the Sahara Desert. The deposits consist of a series of overlapping hematite lenses from 24 to 200 feet in width and the best samples have assayed about 68 percent iron, from one to two percent silica and low in sulphur and phosphorus although minable grade would be under this. The property is suitable for initial openpit mining, later to be supplanted by underground mining. A 225-mile railway would have to be built to Villa Cisneros from the mine.

**SOUTH AFRICA**—Associated Manganese Mines of South Africa Ltd., has benefited greatly from the rocketing price of its product. Mining profits rose from £705,000 in 1949 to £1,271,000 in 1950. The amount of manganese ore railed increased from 493,000 to 560,000 short tons.

**RHODESIA**—Rhodesia Broken Hill Development Company, Ltd., produced 1,200 long tons of lead, 1,855 long tons of zinc and 15.73 tons of fused vanadium (90.58 percent V<sub>2</sub>O<sub>5</sub>) in May.

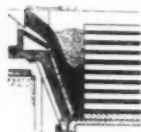
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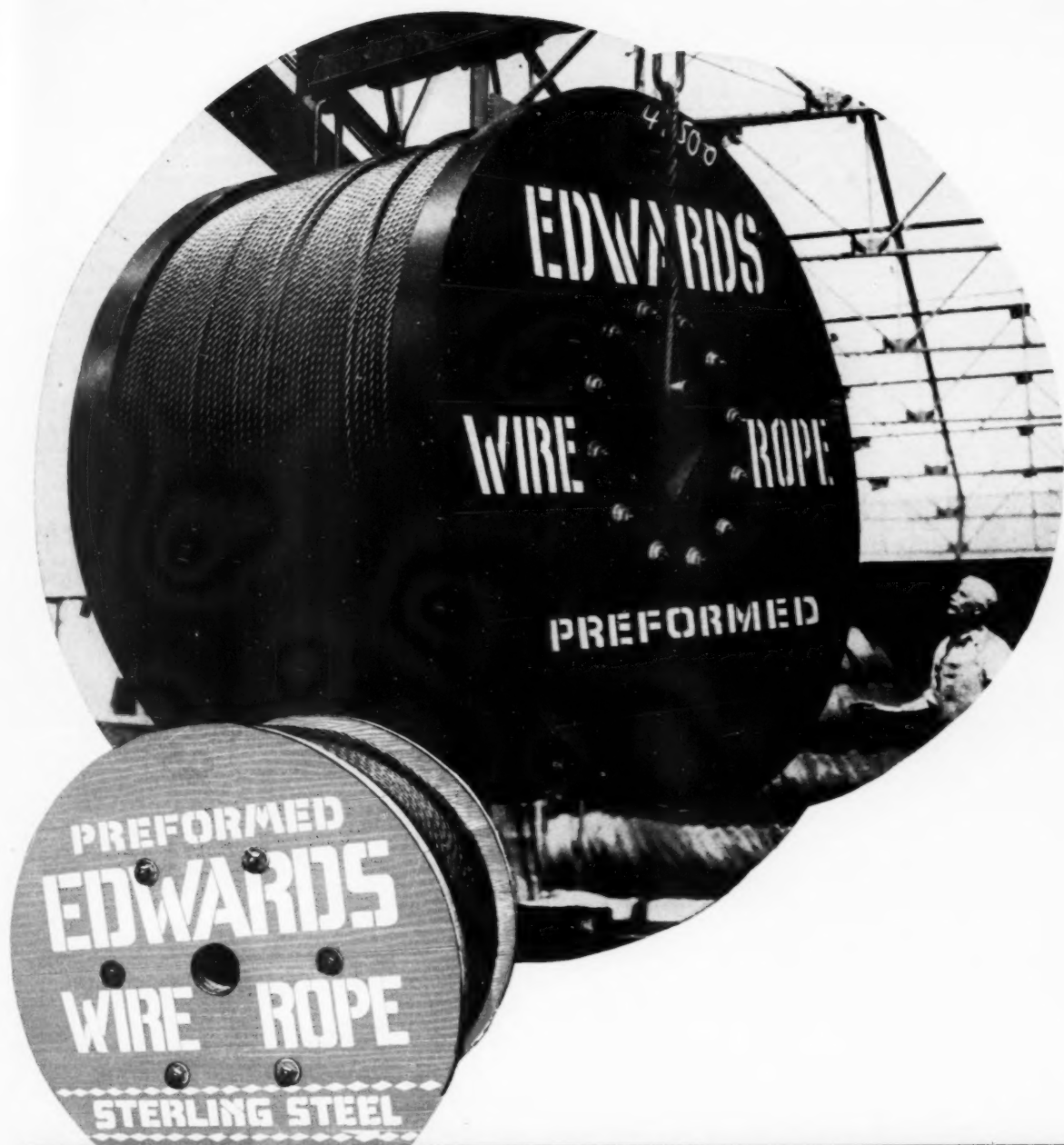
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{World Mining Section—25}

47

## INTERNATIONAL

**ALGERIA**—The *Compagnie Miniere du Djebel Gustar*, in which the *Societe Belge de Recherches Minières en Afrique* (REMINA) has an interest, has under way an exploration program at a zinc and lead mine, in Algeria. REMINA has put up some of the funds for the work, which looks promising.

**BELGIAN CONGO**—The United States has granted a \$15,000,000 Marshall Plan loan to Belgium to increase development of strategic materials in the Congo, including uranium, copper, cobalt, tin and manganese. The Belgian Government plans a \$160,000,000 program in the African territory this year in order to increase production of various materials. The U. S. loan will help primarily to build and improve highways, improve waterways and construct new power stations.

**TUNISIA**—Lead mines in this country reach a new postwar record in April, producing 2,847 tons against 2,732 tons in March. Blende output rose to 500 tons from 412 tons. Another postwar peak was established by iron mines, with production reaching 85,783 tons in April compared with 70,339 tons in March.

**LIBERIA**—The first shipment of iron ore from the *Liberia Mining Company's* Bomi Hills deposit arrived at the U. S. port of Baltimore, Maryland, in late June and comprised 10,000 tons. The loading had been done by hand and truck, but future shipments will be loaded by a conveyor-belt with a capacity of 3,000 tons an hour, the installation of which was being completed when the first shipment was loaded. The Bomi Hills development was partly made possible by the construction of port facilities at Monrovia for \$22,000,000 in a lend-lease agreement between the United States and Liberia. Lansdell K. Christie, New York businessman, has an 80-year mining con-

cession over a 40-mile radius in which area lies the central orebody of about 22,000,000 tons of definite ore and 7,000,000 tons of probable ore. The average iron content is said to be 68.9 percent. The *Liberia Mining Company* is financed mainly by the *Republic Steel Corporation of the U. S.* and the *Export-Import Bank*. Openpit mining for the next 15 years at a rate of 1,000,000 tons per year is planned at the property.

**SOUTH AFRICA**—As of June 11, the *Virginia Orange Free State Gold Mining Company, Ltd.*, had sunk its No. 1 shaft 2,525 feet, the No. 2 2,428 feet and the No. 3 1,499 feet. Cementation is under way at the No. 3 which has now intersected the reef.

**GOLD COAST**—*Ashanti Goldfields Corporation, Ltd.*, crushed 19,500 tons of ore in April, 1951, recovering 15,769 ounces of gold valued at £195,536. *Amalgamated Banket Areas* milled 55,920 tons for 7,818 ounces of gold, and net profit was £26,440 after charging development. *Gold Coast Main Reef* milled 7,997 tons for 2,914 ounces valued at £36,134.

**FRENCH EQUATORIAL AFRICA**—The first shipment of diamonds, \$44,000 worth, has arrived in the United States from the *Compagnie Miniere Oubanghi Oriental* (CMOO) mine and will go into the national stockpile. The shipment resulted from a Marshall Plan program in which the ECA advanced CMOO about \$1,600,000 to explore and produce from its property. The shipment was six months earlier than scheduled.

**BELGIAN CONGO**—The *Miniere du Beceka* has completed mechanization of its big manganese mine at Dilolo on the Belgian Congo-Northern Rhodesia border, and mining has begun.

**SOUTH AFRICA**—*Central Holdings and Exploration Company Ltd.* has been formed to acquire numerous claims in

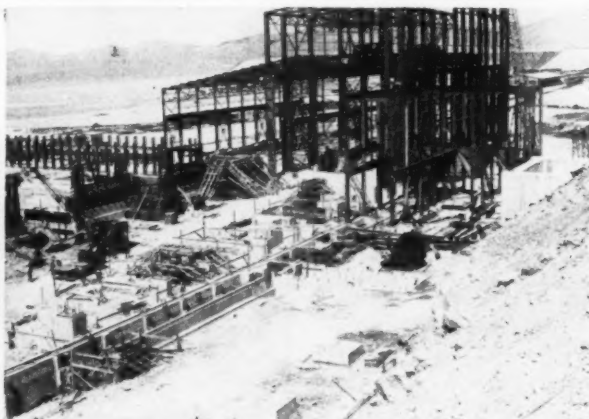
South and South West Africa. These claims include vermiculite interests on the farm Palmietfontein 374 in the Zoutpansberg district of the Transvaal in the form of a mining lease for 25 years from 1947; copper prospecting contracts over an area in the Vryheid district, Natal; 400 base metal claims in the Pietersberg district, Transvaal, believed to be tin-bearing; and a one-sixth interest in 102 base metal claims stated to be manganese-bearing in the Otjiwarongo district of South West Africa. The issued and authorized capital of the new company is £100,000 in two-shilling, six-pence shares.



LATIN AMERICA

**BOLIVIA**—*Patino Mines & Enterprises Consolidated, Inc.*, which operates tin mines in Bolivia, has formed a new company called *Compania de Inversiones Mineras Patino, S.A.*, for the purpose of investment in mining projects in the country. Capitalization is \$1,000,000. The new company may put further money into the *Bolivian Tin & Tungsten Company*, and studies of its property are under way. Patino itself announced that in the first three months of 1951, 2,400 long tons of tin was produced compared with 2,200 tons in 1950. Joseph C. Rovensky, chairman, and Alexander B. Royce, vice president, made the announcements of the company's activities from the New York office.

**MEXICO**—The program to build a network of roads from mining zones to trunk highways is underway, according to Ing. Gustavo P. Serrano, president of the



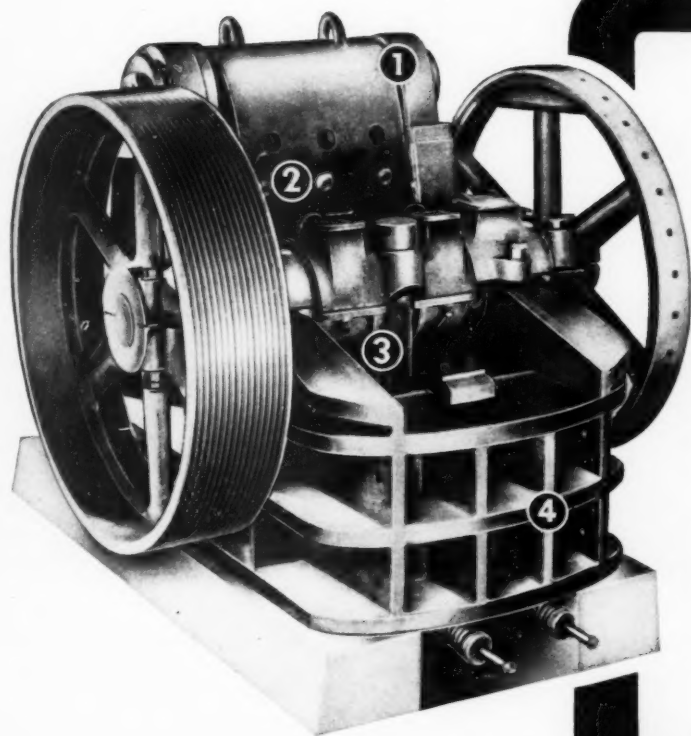
### CHUQUICAMATA CONCENTRATOR AND SMELTER CONSTRUCTION PROGRESSES

Construction of the new 30,000-ton-per-day sulphide concentrator and smelter at the Chuquicamata mine of the Chile Exploration Company, a subsidiary of the Anaconda Copper Mining Company, is well advanced as these pictures show. Construction started in February 1949 and has progressed on schedule with initial production from the new plants due in December of this year. The picture at the left, above,

shows the north side of the concentrator building with steel orebins in place. The picture on the right shows the reverberatory furnace foundations at upper left and the converter foundations in the center foreground. The estimated yearly output of this sulphide plant is 300,000,000 pounds of blister copper. Capacity operations should be reached before the end of 1952.



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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Mexican mining chamber. Ing Rene Erchani is director general of the ministry's local roads section.

**MEXICO**—Since Mexico is minting a large amount of coins for Saudi Arabia (\$10,000,000 worth) and several North African countries and has orders from both Pakistan and Western Germany, exports of silver will cease, according to reports. To fill her orders Mexico needs all of the \$5 to 40,000,000 ounces which will be produced in 1951. Mexico also has announced that a large but unspecified amount of gold money will be minted to curb inflation since Mexicans continue their traditional habit of hoarding hard currency. The Bank of Mexico recently bought 15 tons of gold from the United States.

**BRAZIL**—Alumina do Brasil S. A., which has an aluminum plant at Sao Paulo and is being vacated by Aluminio Limited of Canada, will produce, initially, about 5,000 tons of aluminum annually. Brazil will thus again be the first country in South America to work her own reserves of bauxite to produce aluminum. Aluminio had operated from 1945 through 1946 producing the metal.

**BRAZIL**—Exports of beryllium ore will be stopped, according to the Agriculture Ministry, after 1,500 tons contracted for by the United States up to December 31, 1951, have been sent. As a result of the decree two Brazilian companies have indicated an interest in starting to process the beryl mined in the country. The Agriculture Ministry is at present studying a suggestion that lithium exports also be stopped.

**PERU**—Elektrokjemisk, Inc. of Oslo, Norway, has designed and is building another electrical smelting furnace for use at the Chimbo, Peru, iron mines.

**BRAZIL**—The Brazilian government has set up a three-member board to study the possibilities of extracting sulphur from coal pyrites in the state of Santa Catarina. Members of the board are General Syleio Raulino de Oliveira, chairman; Esmirmino de Moraes and Othon Leontardos.

**COLOMBIA**—Directors of *Amazon Gold Dredging, Ltd.*, advised that in the first four months of this year the company dredged 1,862,900 yards of gravel, recovering 6,288 fine ounces of gold. At \$35.00 per ounce the company made \$220,430 and the yield per yard was 11.83 U. S. cents. The company announced that reserves were estimated at 5,365,000 cubic yards for the No. 1 dredge, and 14,130,000 cubic yards for the No. 2 dredge. The company's properties are along the upper Cauca River in the Departments of Valle del Cauca and Cauca. Directors of *Nechi Consolidated Dredging Limited* advised that in the first four months of the year 1,143,000 cubic yards of gravel were handled for a recovery of 6,481 fine ounces of gold amounting to \$226,835, or 19.84 U. S. cents per yard. Total estimated workable reserves amount to 266,486,000 cubic yards. Indicated reserves are said to be at least 300,000,000 yards.



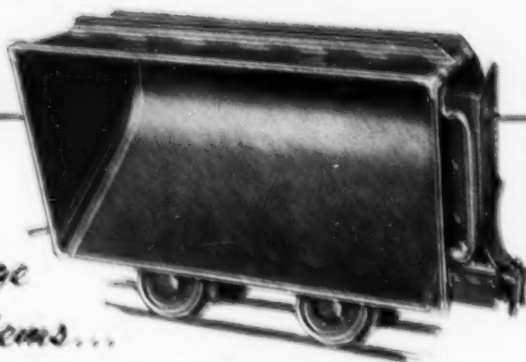
**NORTH AMERICA**

**NEWFOUNDLAND**—What is said to be the world's longest and highest slope belt conveyor system will be installed in the Wabana mine of Dominion Steel &

AUGUST, 1951

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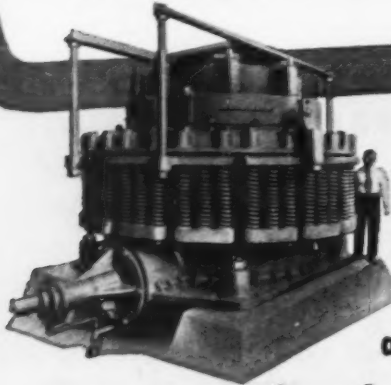
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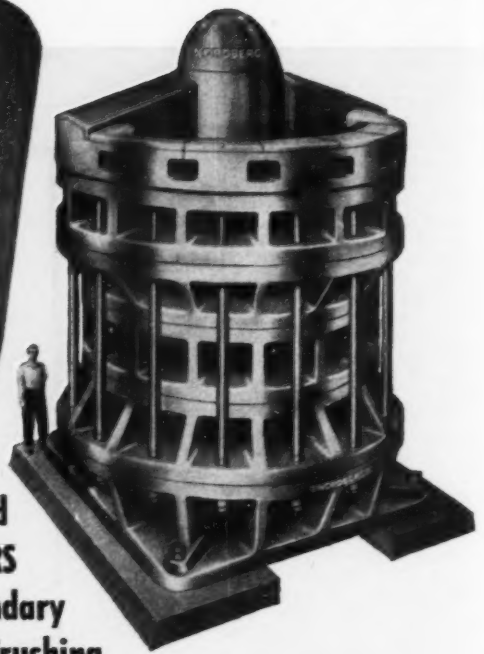
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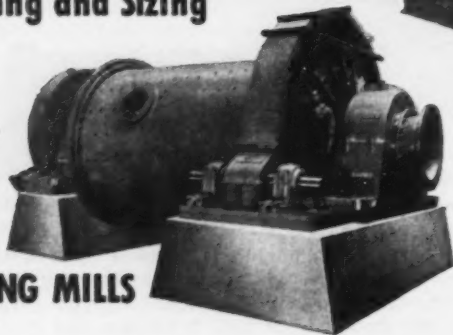
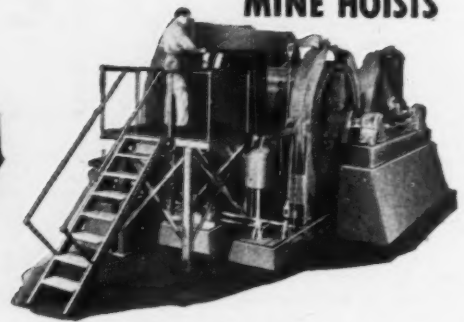
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## INTERNATIONAL

Coal Corporation, Ltd., Bell Island. The mine is three miles off the shore of the island and 1,600 feet below sea level. The belt system will be 1,730 feet high, will deliver 1000 tons of ore hourly up a slope 12,500 feet long, will consist of two flights 1,450 feet long and eight flights 1,230 feet long, and will have belting 36 inches wide hauling ore 575 feet every minute. In conjunction with the belt installation, there will be two screening, crushing and loading pockets underground, discharging on the belt. The entire system will be automatically controlled. By complete mechanization of the mine, operators expect to increase production to three times the present rate.

ONTARIO—Early in July, *Broulan Reef Mines* came into being by a merger of *Broulan Porcupine Mines, Ltd.*, and *Porcupine Reef Gold Mines, Ltd.* The merger joins a healthy mine, the Porcupine Reef, which currently produces about 400 tons of \$6.50 gold ore, and Broulan's 700-ton gold mill. Broulan Reef mines now owns 55 adjoining claims, including two small mines under development, the *Bonetal* and *Hugh-Pam*, and a likely prospect, the *Banner*. Under the direction of Walter F. Brown, new manager of Broulan Reef, the Reef shaft will be deepened to 2,000 feet, and deep levels of the Reef, the Hugh-Pam, and Bonetal will be explored.

ALASKA—The *United States Geological Survey* has opened a laboratory near Fairbanks to aid uranium prospectors. Several field parties also have been sent to Alaska for the summer to cooperate with the *U. S. Atomic Energy Commission* in finding deposits and checking uranium samples. The Survey will be willing to make field investigations for prospectors if requested and if samples show enough value.

ARIZONA—The *Bagdad Copper Corporation*, Bagdad, Arizona, has under consideration plans for doubling its production. The possibilities of adopting a leaching process and producing copper precipitates are being studied. Temporarily, Bagdad's concentrates are being shipped to Hayden Smelter, A. S. & R., while the El Paso Smelter is shutdown for repairs. In recent months Bagdad has been mining at the rate of 100,000 tons of copper ore monthly from its openpit operations. In 1950 Bagdad's production averaged 3,000 tons per day and the resulting concentrates accounted for the major part of the 72,755 tons of copper concentrates originating on the Santa Fe lines within Arizona. Ernest R. Dickie is general manager.

ONTARIO—A mile-deep drill hole put down at the *Helen* iron mine of *Algoma Ore Properties* in the Michipicoten region has proved the continuation of the Helen orebody to that depth, according to George W. MacLeod, general manager. The drilling was done by Boyles Bros. (Eastern) Ltd. using a BBS-4 Diesel-power machine and drilling at a 70-degree dip. For the first 2,600 feet, "B" rods with a core of 1½ inches in diameter were used. From 2,600 feet to 5,840 feet, "AXT" rods with a core of 13/16 inches in diameter were used. The hole was the deepest yet bored in Canada by diamond drill.

COLORADO—Pitchblende has been found at *Prairie Divide* in the Red

Feather Lakes district, 45 miles from Fort Collins, according to Thornwald Sackett, local mining man, and the U. S. Atomic Energy Commission. The vein was found when Sackett and other local men started reopening a zinc mine which had been closed for 25 years. The AEC is developing the discovery, reports say.

ALASKA—The *United States Smelting Refining and Mining Company* has moved its Dredge No. 6 a mile and a quarter from the mouth of Eva Creek to a bench on Gold Hill. The route of the 1,200-ton gold mining dredge was along a prepared channel.

MINNESOTA—The washing plant at the *M. A. Hanna Company's Douglas* mine is operating at its new location near the pit. The ore, which is crushed and screened in the pit, is raised to the washing plant by belt conveyor. This proximity of washing plant to the pit, which provides the plant's crude ore, is being adopted wherever possible. At Hanna's *South Agnew* mine another experiment is under way. A new 34-cubic-yard end-dump Euclid truck equipped with two 300 hp. engines set up side by side and with torque convertor and semi-automatic transmission is being tried out. An interesting feature of this big truck is that it came "knocked down" and was assembled on the job like any other large mine equipment.

SASKATCHEWAN—*Eldorado Mining and Refining Company's* uranium project at Beaver Lodge Lake is progressing and the 500-ton-daily mill being built has been designed for a possible expansion to 2,000-tons daily. A road is being built linking Beaver Lodge Lake and Lake Athabaska; a survey is being made for an airstrip. According to observers four or five times more uranium ore will

eventually be extracted from the *Beaver Lodge* mine than the *Port Radium* mine on Great Bear Lake, until now the only producer on a commercial scale.

NEW YORK—Sales of the *Vanadium Corporation of America* for the four months ended April 30, 1951, exceeded \$10,650,000, or 42 percent above the volume of business in the same period last year. The company recently has made substantial additions to its uranium ore reserves in the Colorado Plateau area, including a find of pitchblende, and to its chrome ore reserves in Southern Rhodesia, South Africa.

ONTARIO—A private group represented by C. C. Huston, Toronto consulting engineer, has drilled over 13,000 feet of holes on a 20,000-acre copper prospect on Point Mamainse, 60 miles north of Sault St. Marie. One drill has been used to a vertical depth of about 300 feet in a copper-bearing zone measuring 2,300 feet in length. A second drill is to start cutting the same zone at a 600-foot depth and a third drill will explore a newly discovered zone with copper-bearing ore extending at least 1,500 feet in length. If deeper drilling holds up to expectations, shaft sinking is expected to start.

NEVADA—*Manganese, Inc.*, has ordered two rotary kilns for its Henderson plant. The kilns, 10 feet in diameter and 150 feet long, will be made of about 400 tons of steel and will be driven by electric-motor gear-reduction drives. The Standard Steel Corporation of Los Angeles, California, is building the kilns for delivery in December 1952 to the mining company's \$2,500,000 manganese-ore processing plant.

CANADA—The Canadian Government is encouraging increased mining of such metals as tungsten, molybdenum and



### IRON ORE CO. OF CANADA AIRLIFTS TRACTORS

A crawler tractor is driven into the cargo compartment of a Fairchild C-119 "Flying Boxcar" at the Seven Islands, Quebec, airport. It is one of 15 which were flown to the Knob Lake, Labrador, airport of the Iron Ore Company of Canada. The tractors were shipped complete excepting their track pads and drawbars in the huge United States Air Force cargo plane. The same plane was used to transport eight-cubic-yard-capacity scrapers and made two trips in one day to carry the tractor combinations which are now in use building roadbed for the 385-mile-long Quebec North Shore and Labrador Railway. The railway will transport iron ore from the open-pit mines to be developed by the Iron Ore Company of Canada to steamship loading docks at Seven Islands.

## INTERNATIONAL

cobalt through incentive price schedules and purchases for the stockpile. According to Minister of Defense Production C. D. Howe, *Hollinger Consolidated Gold Mines, Ltd.*, is planning to recover scheelite; *Little Long Lac Gold Mines Limited* is preparing a 600-ton test shipment of tailing to see if extracting scheelite from its gold-bearing ore is practical. And negotiations are in progress to reopen a molybdenum mine at La Corne, Quebec, a producer during the last war.

**BRITISH COLUMBIA**—*Sheep Creek Gold Mines, Ltd.*, has reported a strike of 100 feet of zinc ore, over half of which was better than average grade at its Zincton mine. The company also said profits for the year ended May 31, 1951 were about double those of last year. Even ore reserves had been nearly doubled. Gross value of the Zincton and Paradise operations (silver-lead-zinc) of the company for the year was \$2,354,232. Ore milled from Zincton amounted to 93,151 tons and from Paradise 16,679 tons. A. E. Jukes is president; H. E. Doelle, managing director.

**ONTARIO**—Further work will be done by the *International Nickel Company* at its nickel-copper properties in the Shebandowan area, 60 miles west of Port Arthur. Two drills will be used and at least a year's work is planned. The company hopes to find enough ore to make a concentrator feasible. At present

about 1,000,000 tons of nickel ore have been proved, averaging less than 2 percent nickel. The orebody lies under Lake Shebandowan.

**ILLINOIS**—At Thornton, the *Material Service Corporation* using two Joy Heavy-Weight Champion rotary drills in its quarry averaged the following footage for 53-foot holes: 40.3 feet per hour for 6¾-inch holes; and 38.7 feet per hour for 7½-inch holes. Average bit life: 4,000 feet.

**ONTARIO**—At Marmora in Hastings County, the *Bethlehem Steel Company* is test-drilling an iron ore deposit, using three rigs. So far grade of ore has been relatively low; ore is magnetite and occurs in stringers, which would make underground mining expensive; the deposit found has a 100-foot-thick limestone capping, which would make openpit work costly; and sulphur content is a little high. Thus, whether or not the company has a profitable find is uncertain but geologists are hopeful.

**ONTARIO**—*Siscoe Metals, Ltd.* at O'Brien, estimates about 2,000,000 tons of vermiculite-bearing ore exists at its new property, 50 miles north of Kingston, and preliminary investigations have been very satisfactory. The company is owned by *Siscoe Gold Mines* and has been producing silver from the Gowganda mine in the Miller Lake-O'Brien zone. Just south of this producing zone, evidences


of an entirely new and equally profitable-appearing zone recently has been discovered. A 100-ton mill is operating at this property.


**IDAHO**—Improvements and replacements of smelting facilities at *Bunker Hill & Sullivan Mining and Concentrating Company's* lead smelter at Kellogg are planned, according to P. C. Feddersen, superintendent. The company also may construct sulphur recovery plants, although the decision to do so depends on a continued country-wide shortage of sulphur since the company's location is not in a sulphur-consuming area. The company has already replaced two batch softening furnaces with two 5 by 15 foot continuous-softening furnaces; plans eventually to replace the smelter stack; plans to install a baghouse unit of 50,000 cfm capacity to assist in experiments for recovering dust and fume from D & L gases and is installing a new crushing and grinding plant.

**IDAHO**—*Idaho Beryllium & Mica Corporation's* application to the Defense Minerals Administration for \$125,000 may be approved within a week or so, according to reports which said that Administrator James Boyd of DMA had found the application generally satisfactory. The company, which recently installed a new spinning mill at its Latah County property, would use the loan to produce beryl crystal powder and mica powder, with crystal-white feldspar as a by-product.

**YUKON TERRITORY**—*Yukon Consolidated Gold Corporation, Ltd.*, which has been dredging the placer ground within a 50-mile radius of Dawson for several years, will operate seven dredges this season, one less than last year, and production may be somewhat reduced accordingly. General indications are, however, for a successful operation. Owing to frozen ground, the company did not start 1951 activities until May 1. Last season's production totalled about \$2,540,000 in value. Dredges were operated on Bonanza Creek, where some high grade yardage was discovered; on Quartz Creek and Klondike Valley, at Hunker Creek, Dominion Creek and Sulphur Creek. About 400 men will be on the payroll again this year. A. M. Nordale is resident manager in charge of operations in the field.

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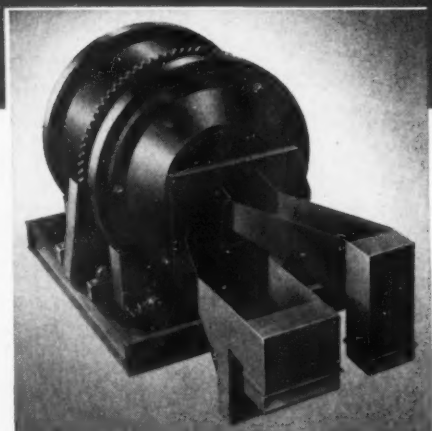


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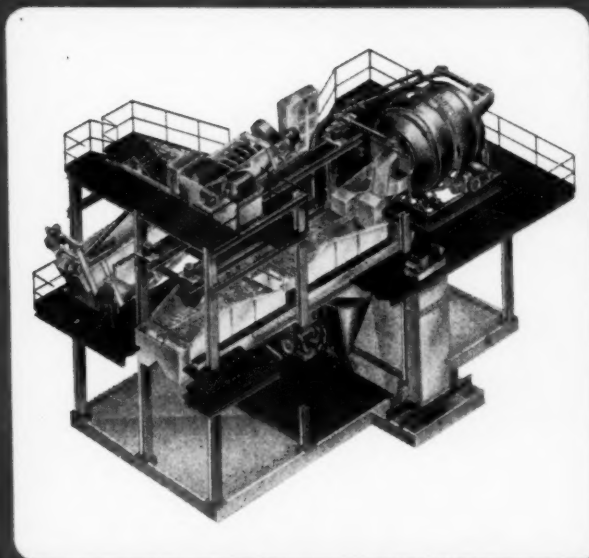
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### EUROPE

**BELGIUM**—Output and exports of non-ferrous metals in Belgium are expected to come closer to pre-war levels this year, according to trade men at Brussels. Copper production will probably reach 145,000 tons this year compared with 132,000 tons last year and 128,000 tons in 1938. Zinc production may reach 190,000 tons this year compared with 117,000 tons last year and 154,000 tons in 1948. However, exports of raw zinc will not hit pre-war levels of 229,000 tons—more likely they will be 120,000 tons this year. Lead production should rise to 62,000 tons this year compared with 102,000 tons in pre-war times. Crude lead exports will probably be 50,000 tons compared with 67,000 before the war.

**ITALY**—Output of the mining industry in the first quarter of 1951 compared with the first quarter of 1950, according to a statement by the Italian Ministry of Industry and Commerce, was as follows: bauxite 36,722 tons (compared with 33,064 tons in 1950); antimony 910 tons (1950, 982 tons); iron 102,989 tons (125,152 tons); quicksilver, 48,377 tons (34,954 tons); manganese 8,827 tons (5,867 tons); lead 15,887 tons (15,758 tons); zinc-rich ores 35,130 tons (35,182 tons); zinc-poor ores 11,948 tons (9,373 tons); asbestos 4,599 tons (5,390 tons); pyrite 13,717 tons (8,396 tons); sulphur ores 337,370 tons (402,796 tons). And aluminum production for the whole year of 1951 is expected to be about 45,000 metric tons, of which five to 10 thousand tons will be an exportable surplus. A rise in aluminum, zinc and lead production forecast for the

year is partly because of the exceptionally favorable hydroelectric power outlook for the remainder of the year.

**FRANCE**—Union Miniere de Pyrenees at Sentein (Araiege) has bought a pre-fabricated Wemco Mobil-Mill to increase output of lead and zinc from the mine. The parts of the mill will be delivered in small enough units for transport to the mine on aerial tramway system. Used for carrying ore down the mountain to a flotation plant below, this aerial tramway system has been a major bottleneck in the mine's production. By concentrating ore right at the mine, the new HMS plant will eliminate the waste tonnage now being carried on the tramway. Total capacity of the new mill will be 20 to 25 metric tons per hour of one-to three-eighth inch lead-zinc ore. The company produced 2,482 tons of 55 percent zinc and 791 tons of 60 percent lead concentrates in 1948.

**NORWAY**—Development work is about to start at the *Gravdal Mines* in western Norway, a small pyrite property idle since the last war. The mine will have to be completely rehabilitated and machinery is on order from both English and Norwegian companies. The operators will drive an 840-meter-long adit first and expect to be hauling ore through it within about a year. The output, about 15,000 tons a year, will be exported.

**ITALY**—Private mining interests have discovered uranium minerals in the Decimomannu region of Sardinia. The Sardinian regional government plans to take over the operation of the deposits through the creation of a stock company with a capital of 500,000,000 lire. Part of the money would be used to buy mining machinery in Great Britain. Any uranium produced will be sold on the Italian market only.

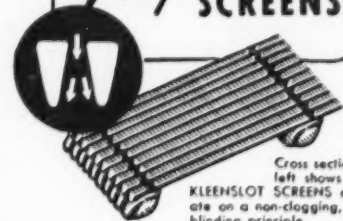
**BULGARIA**—Officials of the Bulgarian Ministry of Industry (Geological Department) have discovered a copper deposit in the Rhodope Mountain area. The deposit was said to extend five kilometers and to be 500 meters deep.

**ROMANIA**—According to official statistics published in Bucharest recently, the output of iron ore during the first four months of 1951 amounted to 34,000 tons, most of which was used by the *Resita Montana* iron and steel works. A new, important strike of iron ore reportedly has been made at Teleni, and preliminary estimates from the Romanian Government put reserves available at from 1,000,000 to 1,500,000 tons of iron yearly for 50 years. Accordingly the government is considering the establishment of an iron and steel plant at the site. As Romania is not equipped to build blast furnaces, her government has applied to Russia for equipment.

**ENGLAND**—Edmund Nuttall, Sons & Company, Ltd., contractor of London, which set a British tunnelling record some months ago, has set a new record which may be, also, a new European tunnelling record. In the week ended June 10th, 35 men working three eight-hour shifts per day drove 427 feet through the hard diorite of the *Cobbler* mountain near Glasgow, Scotland, in seven days. The tunnel is seven feet square and at present 4,000 feet of a final 6,000 has been driven. In addition to this record, the company has set recently a new record for 31 consecutive working days, or 89 eight-hour shifts, by driving 1231 feet at one face. The previous figure was 1,148 feet.

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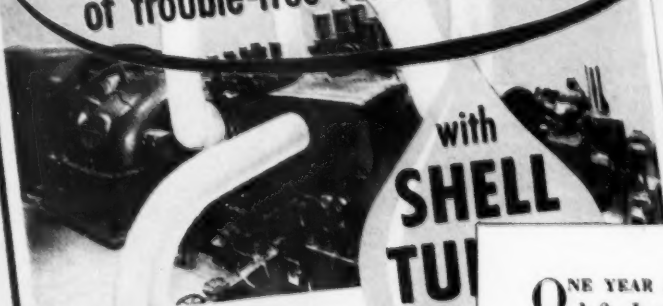
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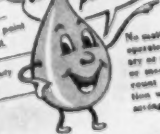
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## INTERNATIONAL



**WESTERN AUSTRALIA**—Following the report of the consulting geologist, H. J. C. Connolly, *Norseman Gold Mines N. L.* has secured an extra seven leases and three reservations to the south of its existing leases, 120 miles south of Kalgoorlie. Production from the company's *Iron King* pyrite mine for the four weeks ended March 27 was 1,390 long tons of sulphur content. An active program of expansion is being pursued and a new hoist is being obtained.

**NORTHERN TERRITORY**—At the Rum Jungle uranium field a shaft has been sunk to 60 feet. Indications are that the field may be richer than was expected.

**NEW GUINEA**—Production for the quarter ended May 31 by *Bulolo Gold Dredging, Limited*, was 17,110 ounces of fine gold from 2,807,800 yards dredged. The company has closed down now, Nos. 3 and 6 dredges, partly because of the low grade of the small remaining gravel reserves where those dredges were working and partly because of the rising cost of operations.

**VICTORIA**—Uranium has been found 150 miles northeast of Melbourne, the first time that the ore has been found in Victoria. Using a scintillometer, the Victorian geologist, Dr. Bain, made the discovery and said he hoped to find more with the aid of the instrument. The Australian Government has offered rewards for prospectors who find payable deposits of radioactive ores and thousands of pounds already have been paid.

**NORTHERN TERRITORY**—Tin and wolfram strikes have been made at Mt. George, Hatches Creek and Wolfram Hill, and miners are rushing to the area to work some spectacular finds. In April the Government was said to have crushed 10 tons of ore from Hatches Creek (about 100 miles southeast of Tennant Creek, the gold area) with a reported yield of £20,000 of wolfram.

The Wolfram Hill deposits (60 miles northeast of Katherine Creek) are in the development stage. At least five men are working the Mt. George tin deposits, north of Katherine.

**QUEENSLAND**—The *Wolfram Tin Pty. Ltd.*, has reported the discovery of a large deposit of tungsten in southeastern Queensland, is installing additional plant equipment to handle the ore and expects to double production ultimately. The ore has been found in 26 reefs, promising several years of active mining.

**PHILIPPINES**—Production by the leading mines during the month of May was as follows: *Acoje Mining Company*, 5,000 tons of chromite ore was shipped, after a lapse of several months, with a value of P194,650. *Atok-Big Wedge Mining Company* produced and milled 13,273 tons of gold with a value of P353,172. *Benquet Consolidated Mining Company* and its subsidiary, *Balatoc*, largest gold operation in the Islands, milled a combined total of 74,683 tons valued at P1,162,851. *The Consolidated Mines, Inc.*, operated by Benquet, and the largest source of Philippine chromite ore, shipped 17,800 tons valued at P427,200. *Lepanto Consolidated Mining Company* produced 27,300 tons of copper-gold ore valued at P1,074,768. *Mindanao Mother Lode Mining Company* produced 10,000 tons of gold ore valued at P310,169. And *Surigao Consolidated Mining Company* produced 9,248 tons gold ore yielding P343,900.

**NEW ZEALAND**—Beneficiation experiments carried out at the School of Mines and Metallurgy, Otago University upon the talc-magnesite rocks of the Nelson Province are now in the final stage and it is expected that a plant will shortly be erected. The talc will be used by local industries and the magnesite mainly to correct magnesium deficiencies in the Nelson tobacco lands.

**FIJI**—A base-metal prospect at Wainivesi has recently been reported upon for a New Zealand syndicate by Gordon Williams, Dean, Faculty of Mines and Metallurgy, Otago University. Zinc mineralization is apparently of tertiary age. Values of copper and precious metals are not negligible.



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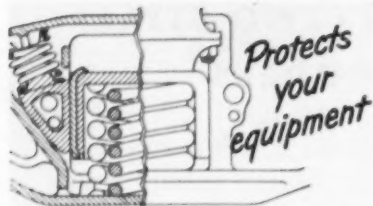
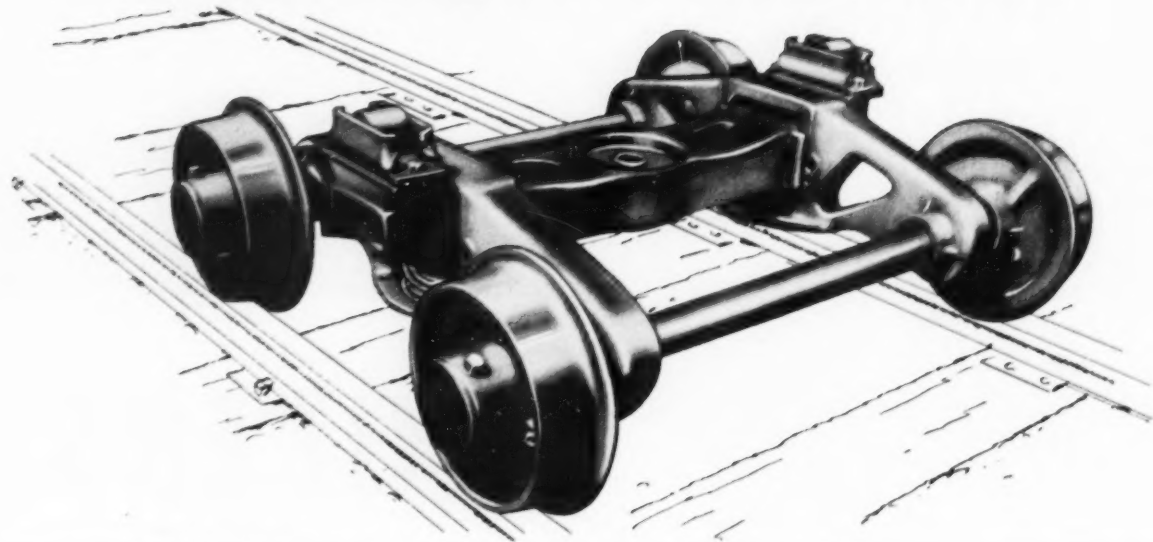
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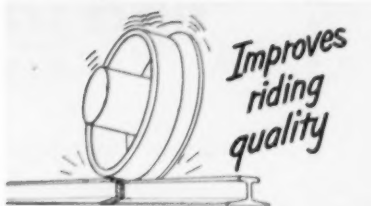
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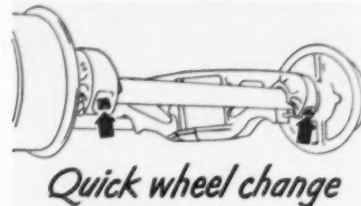
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*Improves  
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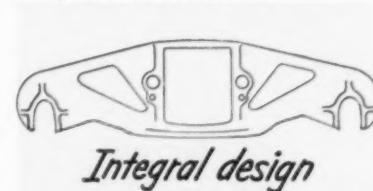
*Keeps  
itself in  
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The NC-1 truck stays square automatically. V-shaped slots over the axles make it impossible for the truck to get out of square without lifting entire weight of the car body and lading—means longer service, less repairs.



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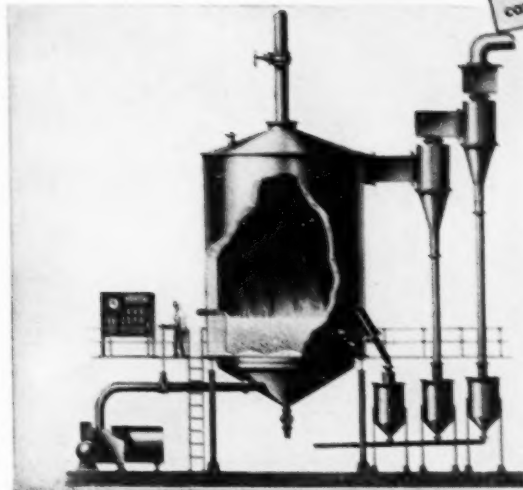




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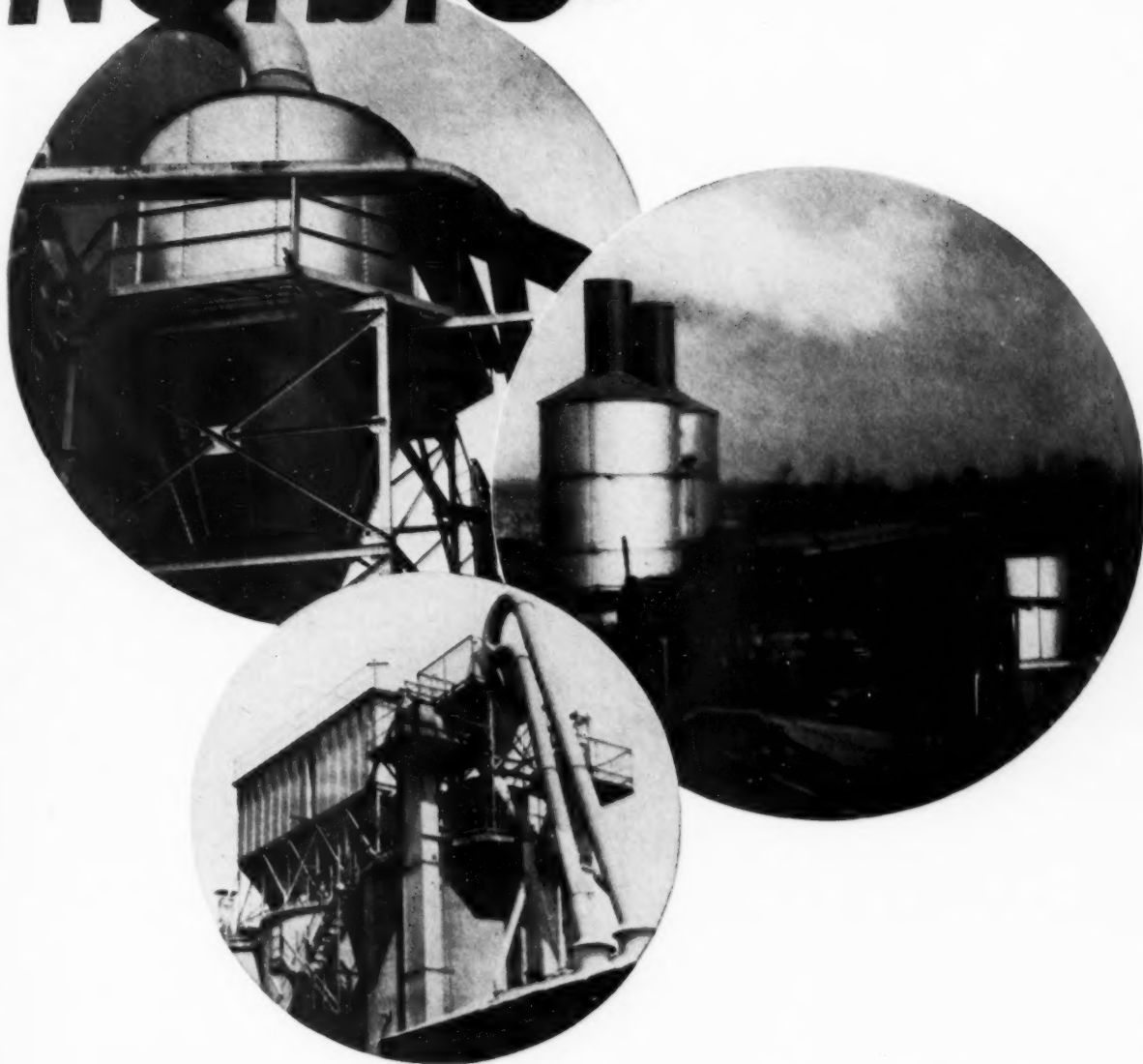


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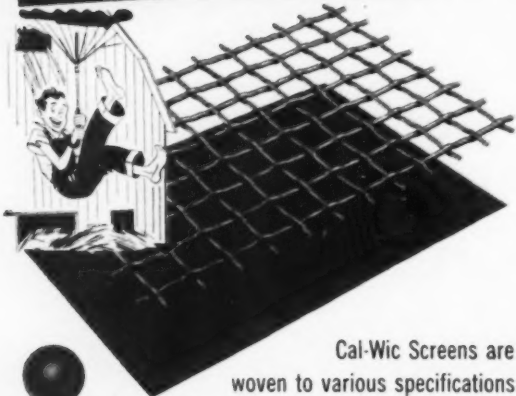
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**MINERALS IN WORLD AFFAIRS.** By T. S. Lovering. Prentice Hall, Inc., New York. 394 pp. \$5.35.

Mr. Lovering's new approach to the integration of mineral economics with other fields of important knowledge, and to the interplay of the four subjects below, has resulted in a most interesting volume. It will not only serve as a refreshing reassembly for experts, but also as a storehouse of information in the respective fields for the layman.

Actually his book is a survey of closely related fields. He has woven a pattern of mineral economics, geology, trade in metals, and the influence of metals on social and economic conditions starting from the hardening of copper by the Chaldeans about 4500 B. C. and carrying on right up to the present time. He has recalled how the petty states of Egypt became a great nation and a world power on their skill in metal manufactures, and he carries his reader from there to the terrible battles of the war 1914-18 and the war 1930-45.

Some of his material is not up to date; for instance, the part dealing with iron ore in which there have been some outstanding developments since he wrote his text.

**MANUAL OF ANALYTICAL METHODS FOR THE DETERMINATION OF URANIUM AND THORIUM IN THEIR ORES** was prepared by the technical staff of the AEC's Analytica Laboratory at New Brunswick, N.J., under the direction of the Raw Materials Operations Office. It is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., for 20¢ per copy.

The new manual, which is intended principally for chemists and assayers with an understanding of chemical fundamentals, contains a compilation of the methods for the analysis of pitchblende, carnotite-bearing sandstone, shales, phosphate rock and monazite sands.

The analytical methods for determining the thorium content of ores as well as the uranium content are included in the booklet chiefly to enable assayers to differentiate between these two radioactive minerals.

**WORLD'S NONFERROUS SMELTERS AND REFINERIES.** Edited by H. G. Cordero. 1950 Edition. Quin Press Limited, London, England. Cloth bound, over 300 pages, \$3.50.

This is the only book of its kind published in any country. Descriptions and locations of hundreds of plants in all parts of the world are given. Products, capacity, process details, brands and analyses are given for many individual plants.

**THE WITWATERSRAND GOLD MINES AND THE VAAL RIVER GOLD MINES.** By Paul Klemper. Investor's Chronicle, London, England. The first book contains 307 pages, three graphs and one map, covers 49 mining companies. Price \$3.50.

The Vaal River Mines book of 32 pages features maps, diamond-drill-hole data, among other subjects, as well as a history of the companies interested in the area. The price of \$1.75 includes supplements and bulletins which will be issued from time to time containing the latest mine information.

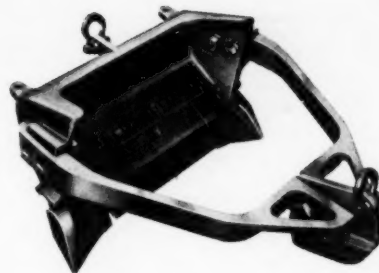
Copies of any of these books may be purchased from MINING WORLD, 121 Second Street, San Francisco, California, U.S.A.

# NEW PACIFIC CATALOG

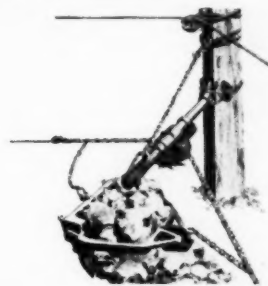


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AUGUST, 1951

[World Mining Section—43]

65

# PRODUCTION EQUIPMENT PREVIEW

PEP is just what new equipment, increased mechanization, and new methods can give to your mine, mill, or smelter. This PEP section is MINING WORLD's way of making available to you some of the finest current information on mechanization.

## FREE-LITERATURE PREVIEW

To get any item of free literature illustrated or described in the *Production Equipment Preview*, note the key number of that item, circle the corresponding number on the PEP coupon, and mail it to *Mining World*, 121 Second St., San Francisco 5, Calif.

**BALL & ROD MILLS:** For information concerning the Marcy line of open-end ball and rod mills manufactured by Mine & Smelter Supply Co. (MASSCO), circle 2.

**FAULT FINDER:** A lightweight fault finder that permits quick location of short circuits and open-type faults in cable is described in a bulletin issued by the Mines Equipment Division of Joy Manufacturing Company. Circle No. 14 and get your copy.

**FLUOSOLIDS ROASTING OF SULPHIDES:** Bulletin No. 7500 covers briefly the use of the Dorcco FluoSolids System as an economical means of producing SO<sub>2</sub> from pyrite or pyrrhotite to supplement presently short supplies of elemental sulphur. Circle No. 15.

**AIR BREAK CONTACTOR:** Air break contactor, Type 356, particularly adaptable for applications requiring frequent starting, inching, reversing, plugging or dynamic braking is described in detail in bulletin "Type 256 High-Voltage Air Break Contactor," 14B7303, by Allis-Chalmers. Circle No. 16.

**SCIENTIFIC EQUIPMENT:** The Eberbach Announcer is a magazine published by Eberbach & Son Company, Ann Arbor, Mich., and is concerned with use of electroanalysis, weighing, moisture-testing, other scientific equipment and features. To receive regular copies of this fine magazine, circle 20.

**MINE ROOF BOLTS:** A newly published illustrated booklet describing Bethlehem Mine Roof bolts, bolt sets, plate sets, tie sets and channel sets, is now available upon request from MINING WORLD. Increased safety, more working space, increased production, faster movement and wider rooms are among the advantages gained by using Bethlehem Mine Roof bolts and accessories. Circle No. 22.

**EXCAVATION PRODUCTS:** The Athey line of loaders, trailers, railroad, logging and other equipment is described in the 1951 issue of Athey Products Condensed Pocket Size Catalog. Get your copy of the catalog from your Athey-Caterpillar dealer, or circle 27.

**DUST COLLECTION SYSTEMS:** Complete literature from Northern Blower

Co., Cleveland, Ohio, on methods of dust collection and cooling is yours by circling No. 31.

**COMPRESSED AIR FITTINGS:** Two new Worthington bulletins describe the new Blue Brute 2-qt. line oiler, and the range of Blue Brute hose fittings; hose nipples, union nuts, hose clamps, coupling reducing and plain spuds, threaded pipe nipples, valves and splicing nipples. Circle 39.

**TIRE CARE:** Of great current interest, "9 Ways to Get More Miles Out of Truck Tires" is an 8-page folder released by B. F. Goodrich Company, and now available to truck operators who circle No. 40.

**DOORS:** A New 4-page bulletin describes new doors available from Electric Power Door Co., and controlled by radio, electric eye, pull cord, ground trip, and key-post switch. Circle 41.

**LOCOMOTIVE SPUR-GEAR DRIVE:** A new two-page illustrated specification sheet describes the Atlas Double-Reduction Spur Gear Drive, a rugged compact unit manufactured by Atlas Car & Manufacturing Co., and designed for use in mining locomotives. Circle 43.

**TRUCK HAULAGE COSTS:** A new 4-page bulletin released by Cummins Engine Co., Inc., describes and gives operating costs for 15- and 22-ton Cummins-powered Euclid trucks for the years 1948 and 1949 at National Lead Company's Tahawus, N.Y., operation. Circle 44.

**CLAMSHELL MAINTENANCE:** A new 42-page booklet, "Maintenance and Care of Blaw-Knox Clamshell Buckets," has just been released by Blaw-Knox Division, Blaw-Knox Company. For your copy of Bulletin No. 2372, with suggestions on proper use, abuses to be avoided, prolonging cable life, and repair of buckets and lips, circle No. 45.

**VIBRATOR:** The Peterson "Vibrolator," now available from Martin Engineering Co., of Kewanee, Illinois, operates on 80 to 100 psi of compressed air which drives a steel ball in circular motion, and is available in three types, in sizes from a small Vibrolator for feeders to large units for use on chutes, hoppers, and ore cars. Circle No. 46 for descriptive literature with prices.

**ROD MILLS:** Bulletin 25-C released by Hardinge Company discusses rod-mill history, application, general design, grinding action, specific features, and gives specifications, and recommended auxiliary equipment for Hardinge rod mills. Circle 47.

**DIAPHRAGM PUMP:** Bulletin 309-R, released by Oliver United Filters, Inc., describes Oliver Diaphragm Slurry Pumps in sizes from 1½- to 4-inch for pumping hot or cold, slurries, acids, alkalines, or abrasives. Circle 48.

**PUMPS:** Rex pumps, portable or stationary, centrifugal or diaphragm, in sizes from 4,000 to 90,000 gallons per hour are described and illustrated in a new 20-page catalog, 51-27, released by Chain Belt Company. Circle 49.

**V-BELT DRIVES:** A new 16-page booklet, "Engineering Standards, Multiple V-Belt Drives," was prepared by The Rubber Manufacturers Association in cooperation with 23 well-known makers of V-belts. It's a designer's must. Circle 50.

**SPEED REDUCERS:** Dodge Mfg. Company has released two bulletins which simplify selection of a shaft-mounted speed reducer. Bulletin A-470 covers the Dodge double reduction torque-arm speed reducer series, and Bulletin A-602 gives data relating to the single reduction series of the torque-arm reducers. For copies of these bulletins circle No. 57.

**BLASTING CAPS:** For complete information concerning Du Pont "MS" delay blasting caps in 14 clearly marked delay periods from 25 to 500 milliseconds, circle No. 61.

**TRACTOR:** A New 32-page 2-color catalog, CR-313-A, describes and illustrates the International TD-9 diesel crawler, and gives detailed specifications, job applications, construction and operating features of the 40.5-hp. (drawbar) tractor. Circle 64.

**PYLON HOSE:** Pioneer Rubber Mills' Pylon hose has a single nylon braid, is constructed from oil and chemical resisting synthetic rubber, works at 800 psi, but has a minimum bursting pressure of 3000 psi. For information on this improved hose, circle No. 69.

**REAGENT FEEDER:** The Clarkson reagent feeder, a compact unit for metering from 2 drops to 2 liters per minute of reagent solutions or stable suspensions to flotation, milling, hydrometallurgical, and chemical circuits, is available in two models, model E in stainless steel for normal use—circle 84, and model F in Teflon plastic for extreme corrosion resistance—circle 85.

**MINE & SURFACE CARS:** Bulletin D-56 released by Differential Steel Car Co. explains how Differential Air Dump cars, dumping completely to either side by air power, can pay for themselves in the unloading of 400 to 500 carloads. Circle 88.

**MILL, MINE, PLANT CONSTRUCTION:** For information on Stearns-Roger Mfg. Co.'s complete engineering, designing, manufacturing, and construction facilities, circle 89.

**MINE POWER CABLE:** Anaconda butyl-insulated high voltage cable with a neoprene jacket provides "greater mechanical and electrical protection, unequalled protection from impact, crushing, twisting, abrasion," acid, oil, and heat resistance. Circle 91.



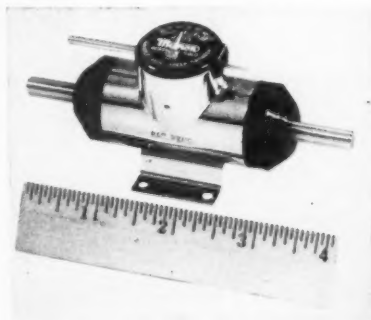
**PLACER MINING:** For information on Bodinson Mfg. Co. dragline dredges and dry bank plants for placer operations, get Bodinson's new illustrated catalog of services and equipment by circling 97.

**SINGLE USE BITS:** For information on low-cost, time-tested, single-use Liddicoat bits, in a variety of sizes that are color coded for size, circle 98.

**ELECTRIC SMELTING AND REFINING:** Furnace applications for matte and speiss smelting, calcium carbide, non-metallic melting, ferroalloys, nonferrous refining and specialized applications. Write on company letterhead for complete book to MINING WORLD, or to Pittsburgh Lectromelt Furnace Corp., 324 32nd St., Pittsburgh, Pa.

### Push-Rod Controls Tiny Variable-Speed Drive

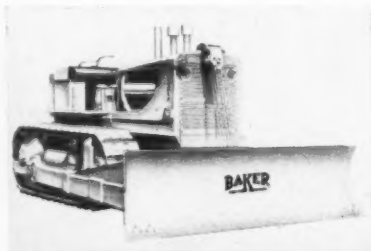
A tiny variable-speed drive, a natural for mill and smelter applications, the Metron Type 4C, is available from Metron Instrument Company. The unit, designed for low-power use on timing, control, and indicating mechanisms, is rated at 72 ounce-inches of torque, 0.025 hp., 20,000 rpm., with infinite speed ratios between 1:6 and 6:1. The speed ratio is controlled



by means of the small push-rod (top), which can be extended for remote control, and can be easily moved by automatic means. For further information, circle 77.

### New Cable-Control Design Improves Visibility

Newly designed Baker cable control mountings for Allis-Chalmers HD-9, HD-15, and HD-20 bulldozers, gradebuild-



ers, and root rippers provide maximum visibility for the operator, streamlined appearance, easy interchangeability, improved protection for cables and the radiator, and a new system of push-beam power tilting which eliminates the need for jacks or pry bars to raise or lower the beam. For further information on the new controls, write to Baker Manufacturing Co., Springfield, Ill., or circle PEP No. 74.

### Overhead Loader Speeds Mucking and Loading

The Lodover, manufactured by Service & Supply Corp., is a 1¼-yard hydraulically operated overhead loader for use on International TD-9 tractors. Operation with



a bucket cycle of 20 seconds, and elimination of turns in the swing from mucking to loading makes the Lodover a real timesaver. A new 8-page 2-color Bulletin, LO-200 describes the unit. Circle 92 for your copy.

### Nation's Mines Will Get Most Conveyor Belts

A major part of the production of rubber conveyor belting at the B. F. Goodrich Company is destined for American mines producing raw materials for defense industries, according to A. Clarke Mack, manager of flat belting sales. Nearly 40 percent of the conveyor belting from Goodrich's new \$5 million industrial plant will go to coal, iron ore, and other mines, and the remaining 60 percent will go to major processing industries, public utilities and construction projects.

Since the first conveyor belts were introduced in underground mines in 1929, more than 1,000 miles of belting have been used in American mines. Goodrich is now working on a 500,000-foot backlog of belting orders.

### Cummins Enlarges Seattle Facilities

Now at the service of Cummins users in the Pacific Northwest are the new facilities of Cummins Diesel Sales of Washing-

ton, Inc., 2520 Airport Way, Seattle, Washington. The modern building has 19,000 square feet of space with up-to-date equipment, including an engine and chassis dynamometer for complete engine overhaul, rebuilding, and testing. In addition there is adequate land for future expansion and for parking. The building is located on the main truck route south to Portland, Oregon, and in the heart of Seattle's trucking terminal area.

### 3000th Lorain TL Goes To Corps of Engineers

The Thew Shovel Company, Lorain, Ohio, built its 3000th Lorain TL series shovel-crane, and officials promptly and proudly got together for the picture below before sending the shovel to the



U. S. Army Corps of Engineers. They designed the Moto-Crane, truck-mounted and mobile, at the request of General Pershing during World War I.

Designed after World War II but carrying on the original tradition, numbering 3000 in various industries and the armed forces, the TL shows that General Pershing's original idea and Thew's product supplied a real need.

### New Sacramento A-C Dealer

The Western Industrial Supply Company, 905 G Street, Sacramento, has been named a dealer for Allis-Chalmers motors and controls in Butte, Colusa, Eldorado, Glenn, Lassen, Nevada, Placer, Plumas, Sacramento, Sierra, Sutter, Yolo, and Yuba counties in California.

William H. Keyser is manager of the firm which was established in January, 1949.

#### PEP Editor

August '51

#### MINING WORLD-WORLD MINING

Please send me complete and free information on the following equipment described in your PEP section, and keyed by the numbers I have circled:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CIRCLE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
NUMBERS	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
YOU	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
DESIRE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Also send further free information on the equipment advertised on page:

\_\_\_\_\_ ; Product \_\_\_\_\_ ; Manufacturer \_\_\_\_\_

\_\_\_\_\_ ; Product \_\_\_\_\_ ; Manufacturer \_\_\_\_\_

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### New Firm Will Extract Titanium by New Process

Houston Titanium Corporation has been formed by the Young Corporation of Cleveland, Ohio, and Helicon Inc., of Princeton, New Jersey, a research organization. The new company will extract titanium metal from ore by a newly developed process said to be more economical than those now in use.

A small building will be built by Houston Titanium in Cleveland to house a pilot plant to produce the metal by a continuous process. The companies did not reveal costs or output.

### Manganese-in-Slag Research Underway

Member companies of the American Iron and Steel Institute are assisting the U. S. Bureau of Mines in operating an experimental blast furnace at Pittsburgh, Pennsylvania, as part of a research program aimed at recovering urgently needed manganese from open hearth slag.

Aided by a Federal appropriation and a \$80,000 cooperative grant from the Steel Institute, the bureau has made two runs in the furnace at its Central Experiment Station. Regional Director H. P. Greenwald of the bureau said results obtained thus far are encouraging and indicate the direction in which the investigation should proceed, but detailed technical information for possible industrial use cannot be correlated until the furnace has operated for longer periods.

The United States produces some 15,000,000 tons of open-hearth slag a year, 65 percent of which is wasted. Much of this slag contains more than 10 percent manganese. The American Iron and Steel Institute explains that some metallurgists believe 800,000 tons of manganese a year can be recovered economically from this open hearth slag if a suitable recovery process is developed. This total would represent about 10 percent of the amount used in steel manufacture in the United States last year. In steel production, less than 25 percent of the manganese fed to furnaces actually comes out in the finished product, the remaining 75 percent being wasted and going off in the slag.

Steel companies in the Pittsburgh-Ohio, Indiana area are aiding in operating the experimental blast furnace by assigning experienced operators to aid bureau crews in running the equipment. The firms are Sharon Steel Company, Youngstown Sheet & Tube Company, Jones & Laughlin Steel Corporation, U. S. Steel Company, National Tube Company, Inland Steel Company, Pittsburgh Steel Company, and Republic Steel Corporation.

Greenwald said that many other companies offered to assign personnel to the research problem, but the men already made available will permit around-the-clock operation of the experimental blast furnace.



The Westmoreland Manganese Corporation of Hotchkiss, Arkansas, has received the first DMA manganese loan for exploration in its property in the Christian area north of Hotchkiss in Independence County. The government has underwritten 75 percent of the cost of the project. The corporation acquired from the Department a large acreage of potential manganese-bearing land and manganese deposits. A drilling contract has been made with A. F. Hughes of Dardanelle who will conduct exploration by drilling a number of clean drill holes. H. E. McHelle is general superintendent for Westmoreland.

The Dodgeville Mining Company, Dodgeville, Wisconsin, has received the first DMA loan in Wisconsin. The company and the federal government will each furnish one-half of the funds necessary to explore for zinc lead on the A. N. Jones property in Town County, Wisconsin. The company operates the Dodgeville No. 3 underground mine and 80 ton-per-day jig flotation mill. C. W. Stripes of Dodgeville and James J. McDonald of Madison operate the property.

The St. Joseph Lead Company has received a certificate of necessity for ex-

ploration in the amount of \$280,000 from the DMA. It will permit the company to develop the cost of its new zinc-lead mine in Washington County, Missouri, over a five-year period. The new mine is being developed for a 5,000-ton-per-day output with initial production scheduled for 1955. The company had received a certificate for expansion of its zinc production facilities at Joplin, Missouri.

The Zinc Chemical Company, Marquette, Michigan, is said to have applied to the Defense Production Administration for \$1,000,000 for manganese inputs of which all was eligible with 50 percent credit.

The White Sulphur mine near Chikwood in Joplin, Missouri, developed several years ago by an independent mine in Cassio, Missouri, via Texas and associates has been developed since into an open-pit mine by J. M. Ruck and associates of Anderson, Missouri. The ore deposit is from 15 to 20 feet deep and will yield an estimated 1,000 tons of zinc lead concentrate. The company will mine by shaft and truck and will mill the ore at the West State mill at the Federal Mining and Smelting Co.

Preliminary work on planning and design for the Bureau of Minerals Research at the Michigan College of Mining and Technology, Houghton, Michigan, is now under way. Professor A. H. Mansfield, head of the college's Department of Mineral Dressing, is in charge of planning work. The Bureau will be directed by



### RICHARD ORE CO. WINS SAFETY AWARDS

National Safety Awards were presented by the Joseph A. Holmes Association of the U. S. Bureau of Mines to the Richard Ore Company, Bushway, New Jersey, at the company's miners' dinner recently. One certificate, presented to Martin J. Braghy, general manager, honored the company for operating an underground ore mine without a fatality from August 9, 1948 to November 9, 1950, a period totaling 1,341,503 man hours and production of over 1,000,000 tons of ore. A second honor certificate was presented to Samuel Lyle Haultz, 74, surface foreman and veteran miner, for his work in and around iron mines and plants in Pennsylvania and New Jersey from July 9, 1898 to December 31, 1930, with no lost time injury. From left to right in the picture are George Pifer, business agent, Richard Mine Employees Union, Inc.; Martin J. Braghy; Douglas Platt, representative of the Bureau of Mines; Samuel Navins (he was one of 11 men receiving personal certificates); John Busch, mayor of the town of Dover; Ferdyn Caborn, vice president of Richard Ore; and Michael Bies, president of the mine union.

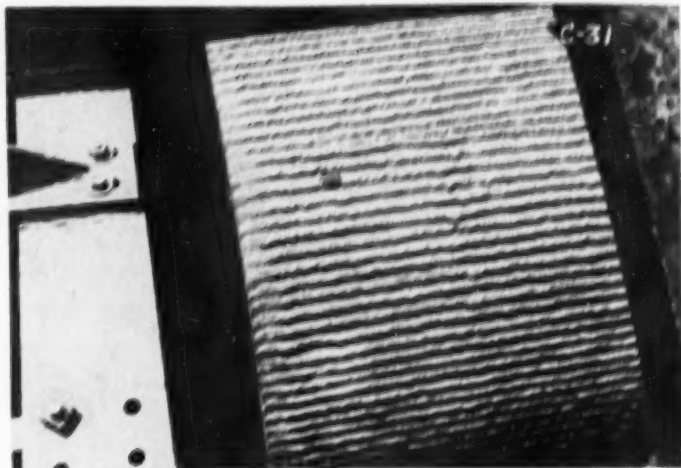


# RESISTO-LOY Reduces Excessive Maintenance Costs on CRUSHER ROLLS

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Regardless of price, we invite you to prove that statement to your own complete satisfaction. Good things DO cost more, and if you want the satisfaction obtainable from a composition of the finest metals available, then you can get this satisfaction from RESISTO-LOY.

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marily to the study of the beneficiation of low-grade coals and iron ores and of other Michigan minerals. It will function as a separate division of the college but will still cooperate with the college departments.



The Republic Steel Corporation applied to DPA for \$887,700 and for \$102,000 for pig iron and steel finish facilities, Cleveland, Ohio. Both of the requests were eligible, the first certified at 70 percent and the second at 85 percent.

Allocation of diamond grinding has been necessary because of present inequitable distribution of available supplies, according to the National Production Authority. The Industrial Diamonds Advisory Committee has, however, recommended to the government that no steps be taken until a survey of the situation has been made.

The first shipment of West African iron ore to reach the United States arrived at Baltimore, Maryland, June 29, from Liberia, when the S.S. Simson & Reed docked with a cargo of 26,000 tons of ore with about 70 percent iron content. On hand to greet the vessel were C. D. R. King, Liberian ambassador; T. K. Christie, president of Liberia Mining Company, Ltd.; T. F. Patton, vice president of Republic Steel Corporation, which owns part of the Liberian company, and others. The ore was destined for Republic's Ohio steel plants.

The New Jersey Zinc Company has completed about half of its 650-foot-deep, three-compartment, Pinewood shaft at its Austinville, Virginia, property. The shaft is being sunk about one and a half miles away from the main Van Meter shaft and will be used to develop existing orebodies.

The Universal Exploration Company is expanding mine and mill capacity to 1,700 tons per day at its Jefferson City, Tennessee, mines. The grinding and flotation circuits are similar to present equipment. Additional flotation capacity is obtained with sixteen 86-inch flotation machines, supplementing the present minerals separation equipment. E. B. Jennings is general superintendent.

The United States Steel Company of Pittsburgh, Pennsylvania, reportedly has applied to the Defense Production Administration for \$10,616,819 for iron and steel production facilities. Of this amount \$10,438,819 was said to be eligible with 80 percent certified.



Pickands Mather & Company has transferred its Gogebic range laboratory and grading department from the Anvil mine to Verona, Michigan, where new and

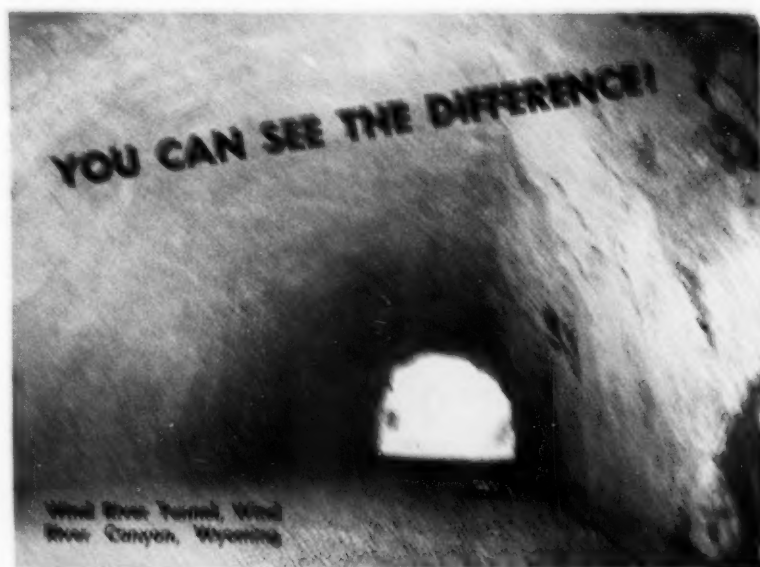
large quantities have been provided. The Clay, Niagara, Plymouth, Sunday Lake, Escalante and Irons mines are active.

Certificates of necessary security requirements by the Defense Production Administration to the Inland Steel Company. The sum of \$29,400,000 was applied for and eligible at 75 percent certification for steel ingots in Indian Harbor, Indiana, and \$2,015,000 was applied for, eligible and certified at 85 percent for ore transportation facilities at Great Lakes, Chicago, Illinois.

The Home Coal & Ore Corporation will open a new open-pit mine near Keweenaw, Minnesota, which will be known as the Carl Zapffe in honor of the late Carl Zapffe of Roseland. The Northern Pacific Railway Co. for whom Carl Zapffe was geologist

and manager, has an interest in the 600 ft. of the new mine.

The Cleveland Cliffs Iron Company is preparing to operate a new open-pit mine on the western Mesquibeh range in Benish County, Michigan. The mine will cover the old Roscoe-Ohio, Texas and Webster properties, which were active until 1935. A new road has been built to 100-ton-per-hour crushing plant will be erected and a machine shop and some smaller buildings constructed. About 30 feet of overburden across the property. The Ohio Resources Office shipped a total of about 85,000 tons while operated by the Mesquibeh Iron Company. The Webster was opened in 1887 by the Cleveland Cliffs Iron Company, shipped about 85,000 tons and closed in 1900.



Boyles Brothers' efficient long-hole diamond drill method is apparent on the left side of this tunnel job. Note the difference between the conventional method of driving tunnels on the right and the diamond drill side-swipe method on the left. A smoother

more uniform job was accomplished by Boyles Bros. with the footage average costs lower than the conventional method.

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The ore shipped averaged about 45 percent in iron and 9 percent silica.

The M. A. Hanna Company is loading tailing from the old Rose mine tailing basin which was deposited there between 1913 and 1920 by the Pittsburgh Steel Ore Company. A total of 895,443 tons was shipped from the mine. The tailing is loaded by a shovel and hauled by truck to the Portsmouth mine, Crosby, Minnesota, and there is made into sinter at the Portsmouth sinter plant. Before the tailing could be loaded, logging operations were necessary to remove the birch and poplar trees that had grown up over the 30-year period.

The Mesaba Cliffs Mining Company is doing structure-drilling at its Hill-Trumbull mine at Marble, Michigan.

The Inter-State Iron Company began this spring to strip its Pettit mine near Gilbert, Minnesota. The Pettit adjoins the Schley and the two mines will be operated as a unit. Archie McWilliams is general pit foreman at both properties. The Schley will make its first shipment as an Inter-State openpit producer this season, its crushing, screening and washing plant being ready for operation. Until the balanced skip-hoist is completed in 1952, ore will be hauled to the plant by truck. The Pettit is scheduled to produce its first openpit ore in 1954 and about 12,000,000 cubic yards of stripping will eventually be moved. Stripping is being pushed on a three-shift, six-day basis with a six-yard shovel, nine 34-ton dump trucks and three 15-yard scrapers. Both the Schley and Pettit were formerly

operated by Republic Steel Corporation as underground mines.

The Cleveland Cliffs Iron Company is installing a mill at its Holman Cliffs iron mine at Taconite, Minnesota. The 200-long-ton-per-hour plant will use an 8x5-foot drum separator to upgrade low-grade iron ores which have been stockpiled at the mine for a number of years. The company is also installing a mill in connection with the washing plant at its Ohio mine.

For the second year in succession the Embarrass mine of Pickands Mather & Company at Biwabik, Minnesota, has been awarded the "Sentinels of Safety" trophy for the best national safety record in 1950. The mine completed 1950 without a single lost-time injury and a total of 650,279 man-hours.

The Perry and Wyman pits near Keewatin, Minnesota, which The M. A. Hanna Company operates together, form another unit like the Douglas mine, where the washing plant is located near the pit with the ore raised to the plant by belt conveyor. A total of 810,320 tons of ore had been shipped from the two mines up to May 1st of this season. Shipping of wash ore is again being carried on at the company's Spring Valley mine and further stripping is also being done. The dragline-conveyor stripping program at the Section 6 mine on the Cuyama range is again in progress. At the Morton mine (first opened as an underground property) now being stripped by M. A. Hanna, the top 30 feet of the circular concrete shaft has been cut off. The shaft was sunk through the sand surface as a drop shaft and by compressed air "sand hogs."

Iron ore occupation taxes, which were due June 14th, totalled \$18,822,661 and made a new high record, as announced by G. Howard Spaeth. The amount was an increase of 31.1 percent over the previous year. Commissioner Spaeth said the increase was due to a greater tonnage mined and to the increased valuation of the ore. The Oliver Iron Mining Company's share was \$12,368,926.

The McGraw Construction Company, of Middletown, Ohio, has received a contract to erect the pilot taconite plant at Babbitt, Minnesota, and to install the equipment. The contract was let by Frank J. Smith of Oglebay Norton & Company as agents for the Reserve Mining Company.

The Haley-Young Mining Company, the Inter-Range Mining Company and E. A. Young, Inc., have moved to 2223 First Ave., Hibbing, Minnesota, one block south of their former office.

The Reserve Mining Company has contracted for 7,500 hp. of electric power for its 300,000-ton-per-year pilot plant near Babbitt, Minnesota, which will begin operating late this year. The Minnesota Power & Light Company will build a new high voltage transmission line to serve the plant.

Operators of ore carriers on the Great Lakes have set a goal of 90,000,000 gross tons of iron ore to be transported from mine to mill this season. The shipping season opened three weeks early this year and a total of 265 American and 40 Canadian ships will be busy carrying ore. The fleet expansion program which United States companies have under-way calls for 14 new ore ships and the lengthening of five more. The Canadians are building three bulk carriers and recently completed three others. Cost per ship is at least \$5,000,000.

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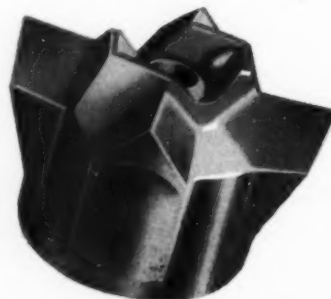
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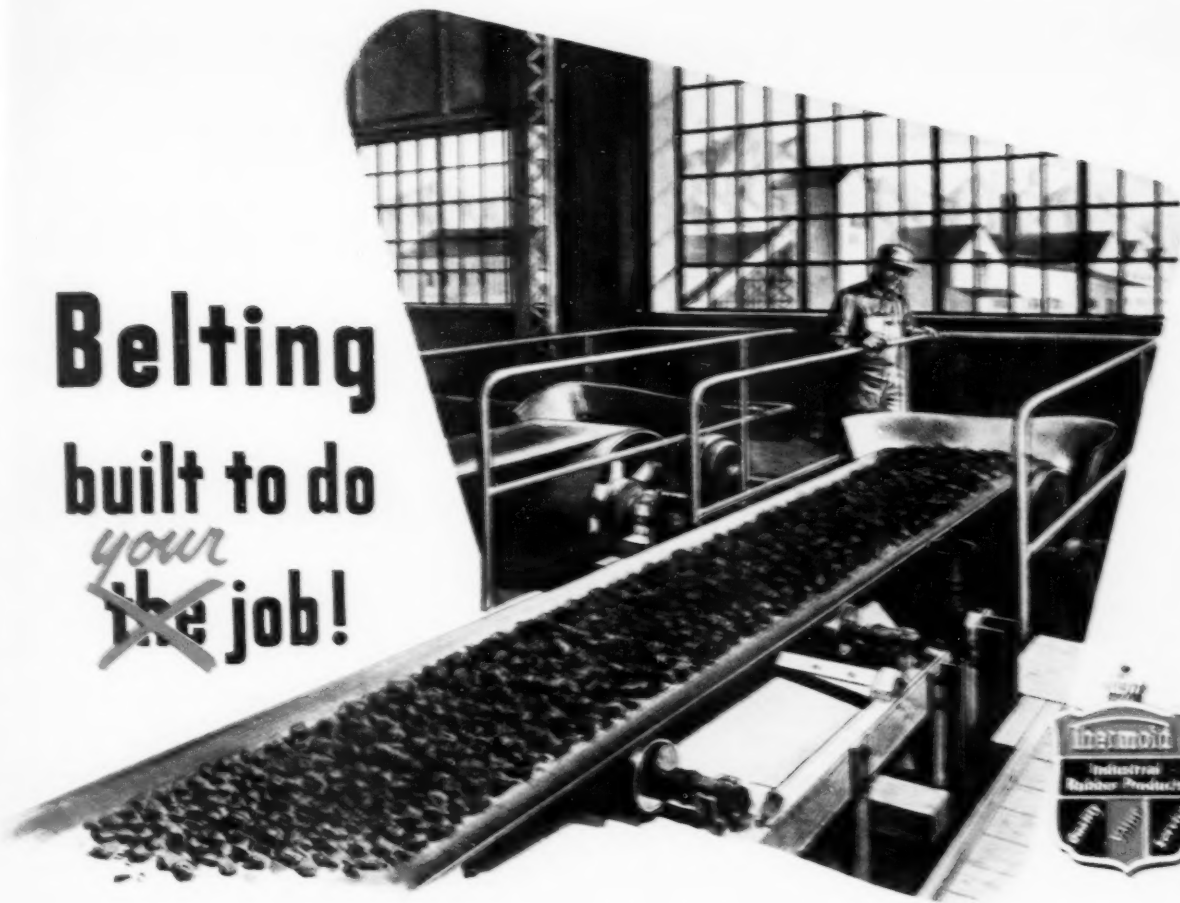
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## precipitates—NORTHWEST

### DMA Loan Goes to Kelly Camp Tungsten Mine

Kelly Camp tungsten mine, Eureka mining district, Ferry County, Washington, got the second DMA exploration loan granted in Washington. It was for \$33,000 to help finance completion of a tunnel to get under a surface outcrop from which \$3500 worth of tungsten was produced last year.

The mine was located in 1942 by Ole Aavestrud, Republic, Washington. He is operating it in partnership with C. A. Weller of Coulee City. American Smelting and Refining Company optioned the property shortly after its discovery but bowed out when the bottom fell out of the tungsten market.

A four-man crew is now mining ore from the surface and milling it in a mill completed last year.

### Operations Begin at Calera Cobalt Mine

Calera Mining company's new 600-ton cobalt mill has gone into operation at the Blackbird mine, southwest of Salmon, Idaho. Negotiations are under way with the federal government for expanding mill capacity to 1000 tons daily. Cobalt concentrates will be stored pending completion of a cobalt refinery at Garfield, Utah, by the parent company, Howe Sound. This is scheduled for fall. Copper concentrates will be shipped as produced. More than five years' exploration has disclosed what is reported to be one of the nation's largest cobalt deposits.

E. B. Douglas is manager of the mine.

### Bunker Hill Starting Smelter Rehabilitation

Bunker Hill & Sullivan Mining & Concentrating Company, Kellogg, Idaho, has begun its smelter rehabilitation program which will improve blast furnace operation and possibly include facilities to recover sulphur from smelter gases. The program will cost about \$1,000,000.

P. C. Feddersen, superintendent of the Bunker Hill lead smelter, said facilities to recover sulphur from fumes would be installed at both the smelter and the Sullivan electrolytic zinc plant if studies prove the present sulphur shortage will continue indefinitely and that there will be a continued assured market at a satisfactory price.

Under ordinary competitive market conditions, he said, Kellogg is too far from consuming areas to make recovery of sulphur products commercially feasible. However, the company has for many years been interested in the recovery of sulphur from smelter gases for nuisance abatement reasons as well as possible profit.

Improvements getting underway will give improved blast furnace operation and make it possible to produce a gas of higher concentration when required for sulphur recovery, Feddersen said.

Stearns-Roger Manufacturing company,

Denver, Colo., has broken ground for its initial unit of a new crushing and grinding plant. Being designed is a vacuum dezincing unit for removing zinc from lead as a metal instead of an oxide dross as now done. A new baghouse unit for the Cottrell dust and fume recovery plant and a new main smelter stack will be built. The Bunker Hill smelter completed its 34th year of operations July 5.



**KARL W. JASPER**

president of Grandview Mines, Inc., has succeeded the late James L. Leonard as president of Metaline Mining & Leasing Company. The property, in northeastern Washington, is being developed by Sullivan Mining Company. Another Grandview man, Eskil Anderson, geologist and mining engineer, has replaced Leonard on Grandview's board of directors. Anderson, formerly of Alaska, has been with Grandview about a year.



Day Mines, Inc. of Wallace, Idaho, will receive a \$144,000 DMA loan for a \$288,000 zinc exploration project at the company's old National Copper property in the eastern part of the Coeur d'Alene mining region, near Mullan, Idaho. The loan is the first from DMA in the district. The company has reopened the 4500-foot National tunnel and is preparing to examine old workings and explore in two directions for a new ore deposit, according to Henry L. Day, president.

Monsanto Chemical Company of St. Louis, Missouri, has announced it will build a multi-million dollar plant at Soda Springs, Idaho, for converting phosphate rock into elemental phosphorus. The company will install facilities for both mining and processing operations, including an electric furnace, a pre-furnace processing plant, machine shop, laboratories, storerooms and office building. The new plant is scheduled to begin operations late next year. Fifteen phosphate

leases reportedly were bought from the J. R. Simplot Company.

Silver Summit Mining Company has opened a promising orebody on the 3000-foot level of its mine between Wallace and Kellogg, Idaho. A vein varying from six to eight feet in width and containing better-grade tetrahedrite ore than any yet mined had been followed more than 100 feet, according to last reports. The ore was opened after following a stringer several hundred feet west of the orebody which in 1950 yielded more than \$1,000,000 in its first year of production.

National Silver Lead Mining Company has resumed development work at its property on Big Creek in the silver belt between Wallace and Kellogg, Idaho. Drifting on a siderite vein, suspended last fall, is being continued to reach a contact between the Revett and St. Regis formations which has yielded promising surface showings.

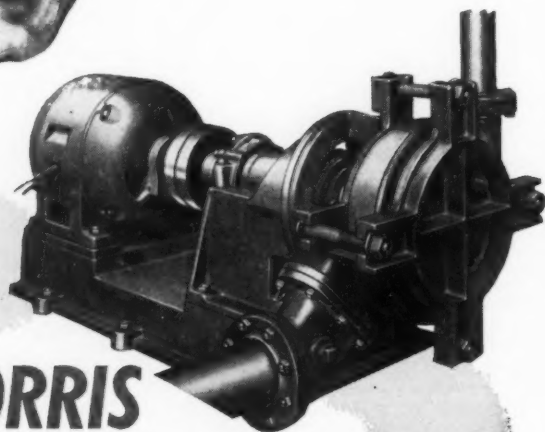
Idaho Custer Mines, Inc., a recently incorporated Wallace, Idaho, corporation, has acquired the property of Livingston Mines, Inc., in the Boulder mining district near Mackay, Idaho. Idaho Custer is headed by Harry P. Pearson of Wallace, president of Silver Summit Mining Company. Livingston Mines is headed by Howard R. Crow of Seattle. The property includes seven patented and 15 unpatented claims. Last year lessees shipped some crude lead-zinc-silver ore. Idaho Custer has issued stock to pay for installation of a mill and purchase of mine equipment, rehabilitation and development of the mine, and working capital.

A diamond drill hole has intersected a seven-foot vein about 300 feet north of the west Crystalite drift at Nabob Silver-Lead Company's property, Wallace, Idaho. Further drilling and cross-cutting are planned to check the extent and characteristics of the vein, believed to be the main Nabob structure.

The Black Horse-Paragon Mining Company is planning to construct a mill at its property near Murray, Idaho. The company will process an estimated 30,000 tons of lead-silver dump ore and ore from small nearby properties. Arrangements have been made with the Washington Water and Power company for extension of a power line to the mine, a new road is being built, lumber for new buildings has been bought, and a compressor is being installed. Albert M. Nash of Kellogg is president and general manager of the company.

Mines in the Coeur d'Alene district of north Idaho yielded ore valued at \$58,627,711 in 1950, according to statements filed with the Shoshone county assessor. This compares with \$42,635,730 in 1949 and \$52,410,520 in 1948. Statements were filed by 34 mines and leasors. The Bunker Hill & Sullivan Mining and Concentrating Company reported the largest 1950 gross yield, \$15,437,173 from 508,258 tons of ore. The Star mine, owned by Sullivan Mining Company, ranked second with \$9,084,486. The Page mine of Federal Mining & Smelting was third with \$5,235-





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180 and the Sunshine mine fourth with \$4,584,647.

A lead-silver ore strike in the *Whitedelf* mine near Clark Fork, Idaho, is reported by Compton I. White, managing secretary-treasurer of *Whitedelf Mining and Development Company*. The former Idaho congressman said a stope in the ore is yielding concentrates running about 62 percent lead and 1 ounce of silver to each percent of lead. The orebody was found in the hanging wall of the Pearl vein north of the Pugh fault on the main adit level and preparations are being made to open it from the 400-foot level.

*American Smelting and Refining Company* is making rapid progress improving the surface plant at its *Galena* project west of Wallace, Idaho, under lease from *Vulcan Silver-Lead Corporation*. A new 48 by 122-foot hoist and compressor building is under construction. It will house a 900-horsepower hoist purchased from *Consolidated Copper Mines* near Ely, Nevada, and a 5,000-cubic-foot compressor. Repairs are continuing on the 3,000-foot *Vulcan* shaft. Tunneling and diamond drilling from the bottom of the shaft has opened a wide zone of ore sufficiently encouraging to justify expenditures for the substantial plant expansion program. *Day Mines, Inc.*, Wallace, has a 25 percent interest in the project.

The *Silver Banner Mining Company*, controlled by the *Coronado Copper and Zinc Company*, prominent in California and Arizona mining, has acquired a lease and option on the 32-claim *Moe* property in the Coeur d'Alene district's east silver belt district, Idaho. The *Moe* is bordered on the west by *Hecla Mining Company's* *Rock Creek* property and on the south by the *East Silver Belt Lead Mine*, under lease to *Hecla*. The *Atlas* property is not far to the east. The *Silver Banner* company has not released its plans as yet for the *Moe* property. Officials are Blair W. Stewart of Los Angeles, president; S. K. Garrett, *Coronado's* Idaho representative, vice president; Dr. F. E. Scott of Wallace, a director, and others.

A. L. Fisher and sons of Coeur d'Alene, Idaho, have started exploration work on the *Osakis* group of claims in a little developed area south of Wallace, Idaho, near the head of *Placer* creek.

Two companies recently were incorporated in Idaho. One was *White Pine Lead Company*, headed by Robert I. Troxell, John M. Dahl and Charles R. Donaldson of Boise. The other was *Pine Mines, Inc.*, of Lewiston. O. L. Gleason and J. T. Heasley of Lewiston, Ernest Butler of Myrtle and Thomas Kelley of Peck filed incorporation papers at \$500,000 capitalization.

MONTANA

*Kootenay Copper Mines, Inc.*, has leased the *Green Mountain Mining Company* property near Dixon, Montana, according to reports. *Kootenay* plans to sink about 150 feet below the No. 3 level to open up more promising showings at depth. About two months of preliminary work has already been done under the supervision of Steve J. Giulio.

MINING WORLD

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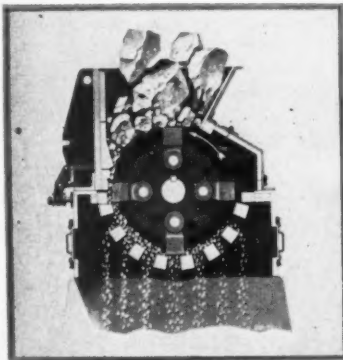
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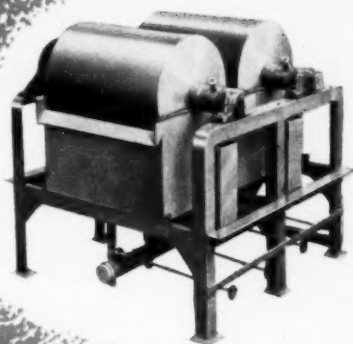
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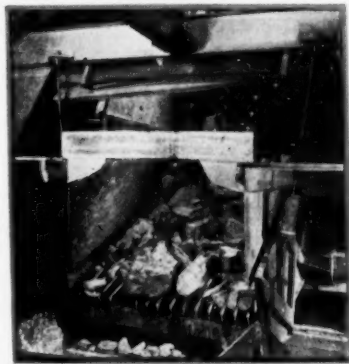
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The North Butte Mining Company is said to be considering the opening of several zinc deposits in its Butte, Montana, property. If such a decision is made, the company would probably install its own zinc concentrator.

The expansion of operations under way at Nancy Lee Mines, Inc.'s property near Superior, Montana, has led to the addition of a third shift and two more officials—Jake Schroder, mill specialist, and Raymond L. Schultze, mining engineer and geologist, who is handling underground operations. Both men are working under C. R. Ranney, general superintendent. The company has completed one raise to the old upper-level workings, providing ventilation needed before stoping operations could begin. The west drift, now advanced about 250 feet, continues in ore. In order to pay for expanded operations, the company recently levied an assessment which would cover the purchase of a larger compressor, additional mill equipment to increase plant capacity, the extension of the power line four miles to the mine, and larger camp facilities. The mill is handling about 75 tons of development ore daily.

Nancy Hanks Mines, Inc., has been incorporated at Reno, Nevada, to rehabilitate and develop the Nancy Hanks properties near Garnet, Montana, formerly held by Nanscran Mining Company. Kenneth D. Butler, Lusk, Wyoming, is president; Dean F. Brayton, Salt Lake City, vice president, and Harry A. Bellows, Spokane, secretary-treasurer.

WASHINGTON

Germania Consolidated Mines, Inc., of Spokane, which recently became Washington first producer of tungsten concentrates when more than a ton of mixed wolframite and scheelite concentrates, valued at about \$6,000, was trucked to Spokane for storages, is completing marketing arrangements with the government for its ore. Nine men are working in the mine and mill, 80 miles northwest of Spokane, and a milling rate of 60 tons daily is planned. Ore, which occurs in a quartz vein in granite, is coming from two stopes. The company's holdings adjoin the famed old Germania mine, for which German interests shipped ore by submarine to Germany in World War I, until the U. S. got into the war. J. A. Franz of Lind, Washington, heads Germania Consolidated.

Mines Management, Inc., of Spokane, which recently was granted the first DMA exploration loan in Washington state (\$12,000 for additional diamond drilling of the Iroquois zinc-lead deposit), has purchased equipment for a 50-ton pilot mill for its other Stevens county property—the Advance. The Advance mill will be enlarged later, according to W. R. Green, president. The diamond drilling program at the Iroquois is living up to expectations, he said. The company has a mill of 400-to-500-ton daily capacity in the planning stage for the Iroquois.

Certificates of necessity for accelerated tax amortization have been approved by the Defense Production Administration for Kaiser Aluminum & Chemical Corporation, Mead, Washington, Reynolds

Metal Company, Longview, Washington, and American Smelting and Refining Company, Tacoma, Washington. Kaiser asked for \$12,789,750 for aluminum pig facilities and received all with 80 percent certified. Reynolds asked for \$9,999,000 for aluminum pig facilities and received all with 80 percent certified. American Smelting asked for \$897,250 for sulphuric acid facilities, received \$891,739 with 80 percent certified.

Thomas Consolidated Mines, Inc., of Spokane, Washington, is negotiating for a mill for its War Horse property near Kimberley, British Columbia, according to David E. Watson, treasurer. He said lead-zinc mineralization was encountered 90 feet from the portal of the new lower tunnel and 1,200 feet west of where ore was cut in the next higher tunnel by former operators, indicating possibilities of a large mine. The company took over the War Horse last year after suspending exploration work at its property near Wallace, Idaho.

Cadmium forms a substantial part of concentrates being produced from ore taken from the old Dead Medicine mine in the Colville district of Stevens county, northeastern Washington. Silver Trail Mining Company, owner, reported that lessees Robert C. Ramser, Spokane, and A. B. Sylvester, Evans, were producing zinc concentrates running \$170 in zinc and \$107 in cadmium per ton; also lead concentrate running \$90 in lead and \$89 in silver. Ore is trucked 50 miles to the leased Laurier, Washington, mill of Talisman Mining Company. The property, staked in 1887, got its name from an Indian reference to lead as "dead medicine" because the white man made bullets of the metal.

The Northwest Mining Association has set December 14 and 15 for its 57th annual convention, according to E. C. Stephens, president. Sessions will be held at the Davenport Hotel in Spokane, Washington. The AIME will be invited to sponsor the technical sessions again.



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MINING WORLD



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### Climax Molybdenum Plans 20,000' of Development

The Climax Molybdenum Company has awarded a contract to Gibbons and Reed Company, Inc. of Salt Lake City, Utah, calling for over 20,000 feet of Storke level development at the Climax, Colorado, mine over a two-year period. The contract extends until November 1, 1952 and covers several sizes of development openings in addition to concreting of draw points and slusher box-hole loading points. Climax is speeding up the development of the Storke level 300-feet below the Phillipson level which has long been the main operating level at its Climax mine. Under terms of the recently signed contract with the United States Government, Climax is working six days per week including some holidays.

W. K. McGlothlin, Climax mine superintendent, is on leave of absence to supervise the contract work for Gibbons and Reed. W. M. Wamsley, assistant mine superintendent for Climax, succeeds McGlothlin. John Petty has been promoted to assistant mine superintendent.

### New Park and Chief Con Receive DMA Funds

New Park Mining Company is undertaking a \$235,000 development project at Kestley, Utah, and Chief Consolidated Mining Company is starting a \$463,420 project at Eureka, Utah, both with backing from DMA.

Three major exploration phases make up New Park's project, according to Clark L. Wilson, mine superintendent. Under the terms of agreement with DMA, the company and the government each will furnish \$117,000 for the work, which is to be completed in 20 months.

These projects are: 1) Advancing the Mayflower tunnel 900 feet to the west and 1,500 feet of crosscutting to the northwest and southeast to intersect the Mayflower fissure in an area where it cuts through limestone below the Park City and Weber formations. Replacement orebodies could be found by this work. 2) Prospecting west of the present face of the General Connor tunnel in which three fissures were found. To reach this area a 900-foot long crosscut will be driven north from the Pearl fissure on the Mayflower Tunnel level. 3) Rehabilitation and exploration work from the Star of Utah adit, including 1,400 feet of new crosscutting.

Chief Consolidated will deepen the workings in the Chief No. 1 Mine from the 2700-foot level to the 3100-foot level to permit the driving of about 5,000 feet of drifts, crosscuts and raises from these levels. The work will necessitate additional pumping and hoisting facilities to raise capacity by 7,000 gallons per minute from the present capacity of 5,000 gallons per minute. DMA will provide half of the funds, \$231,710. The company wishes to develop and mine at depth three known ore channels that have been productive to the present depth.



Modern Gold Dredging Company of Spokane, Washington, is planning to construct a washing and jigging plant near Craig, Colorado, to handle 2,500 cubic yards of gold-bearing sand daily from placer ground, according to John Sims, manager and treasurer. The firm, incorporated last fall, has sunk 900 test pits on 1600 acres in Colorado's Four-Mile mining district, he said. Gold values averaging 35 cents a yard were found in brown sand three to four feet thick, he said. There is no overburden but the land is so flat it couldn't be worked by methods known to early-day miners in the district. Company officials estimate mining costs can be held to about six cents a cubic yard by using a LeTourneau scraper. Lee Eller, St. Regis, Montana, is company president.

A major exploration project is underway at the Akron lead-zinc mine of the Callahan Zinc-Lead Company at White Pine, Gunnison County, Colorado. One half the project's cost, \$200,000, is being underwritten by the DMA. Under the direction of James E. Dunn, superintendent, mine crews have started driving a drift from Akron mine workings northwesterly to explore in depth for the continuation of orebodies mined near the surface. About 2,000 feet of drifting will be necessary to reach the area which is in ground owned by the Hayden Mining Company and recently taken under lease-option agreement by Callahan.

Silver Bay Mines, Inc., has received a DMA exploration loan for \$40,000 for its Blawck Hawk and Occidental mines in San Juan, County, Colorado. Ernest S. Hoffman, general manager, announced that work will start immediately at the mines, above the old mining camp of Gladstone. Initial work will consist of driving the Hurley crosscut adit about 500 feet to cut the downward projection of the Occidental vein which the company has developed by three adit levels above. The Occidental vein carries zinc-lead-silver-gold ore. George L. Zanoni of Silverton is superintendent.

A DMA loan of \$25,000 has been approved for the Lupton Mining Company to complete its new lower adit at its Grizzly mine in Clear Creek County, Colorado. Major Ellis P. Lupton, company president, negotiated the loan during a recent trip to Washington, D.C. The Grizzly mine has been a high grade lead mine in the upper levels. The ore is milled at the company's Commonwealth mill.

Henry P. Ehrlinger, general manager of the Bonita Mining Company, Silverton, Colorado, says that the DMA has agreed to put \$17,500 into the company's sinking project on the Lead Carbonate vein. The company is sinking 220 feet to explore below existing workings. Ehrlinger said

that since January, when the request was made to the government for funds, the company has gone ahead on its own to develop a rather large orebody on the Mocking Bird vein in both the main and sub-levels of the mine. The company also has applied for funds to open the Emma-Oregon-Galena group of zinc-lead-silver claims in the Ice Lake Basin district of San Juan County. Work will be started at the Emma regardless of Government action.

WILLIAM V. BURGER has been promoted to dean of students and registrar at the Colorado School of Mines, Golden, Colorado, effective September 1. He is now director of admissions and registrar.



H. Dean Burdick, assistant professor of chemistry, replaces Burger in the latter capacity. Burger joined the School in 1947 and before that served four years in the air force and was director of admissions at Coe College for seven years.

The Idarado Mining Company, Colorado's largest copper and second largest gold, silver, lead and zinc mine, is building a new tailing pond at Ironton Park, Ouray County, three miles below its Treasury Tunnel mill. The new pond will have a storage capacity of 800 tons of tailing per day. A new gravity-flow pipe line is also being installed between the mill and the pond site. Fred Wise is general manager and Robert Cackle is general superintendent.

T. J. Hennings has been shipping high-grade tungsten (ferberite) ore from the Vasco No. 1 mine in the Nederland tungsten district, Boulder County, Colorado. The mine is leased by Hennings and was last operated by Boulder Tungsten Mills, Inc., during World War II. Hennings found ore showing in the bottom of a "bootlegged" hole in a drift driven by Boulder Tungsten, and additional prospecting opened up the orebody.

Ross Benson of Boulder, Colorado, has built and is operating a large trommel-screen jigging plant on property leased from Hetzer Mines, Inc., in the Nederland district, Boulder County, Colorado. The plant is treating alluvial and residual material for its ferberite content. Initial operation has produced over 100 pounds of 50 percent WO<sub>3</sub> concentrate per day.



Additional showings of good grade ore have been found in stringers traversing the joint new Park Utah Consolidated Mines Company-Silver King Coalition

# METAL AND MINERAL MARKETS

## METALS

		July 13
COPPER:	Electrolytic. Delivered F.o.b. cars, destination U.S.A.....	24.50¢
	Lake. Delivered, destinations U.S.A.....	24.625¢
	Foreign Copper. New York.....	27.50¢
LEAD:	Common Grade. New York.....	17.00¢
ZINC:	Prime Western. East St. Louis.....	17.50¢
ALUMINUM:	Primary 30 pound Ingots (99% plus). F.o.b. shipping points.....	19.00¢
ANTIMONY:	Bradley Mining Co.'s Elk Brand 99.5%. F.o.b. Cascade, Idaho.....	50.00¢
	Lone Star Brand. F.o.b. Laredo, in bulk.....	42.50¢
COBALT:	97-99%, keg of 550 pounds.....	\$2.10
MAGNESIUM:	Ingots (99.8%). F.o.b. Freeport, Texas.....	24.50¢
MERCURY:	Flasks. Large lots, New York.....	\$210.00
NICKEL:	"F" Ingots (5 pounds). F.o.b. refinery, Port Colburne, Ontario.....	56.50¢
TIN:	Grade A Brands. New York.....	106.00¢
TITANIUM:	(98.5%). F.o.b. Beverly, Massachusetts.....	\$7.00
GOLD:	United States Treasury price.....	\$35.00 per ounce
SILVER:	Newly mined domestic. United States Treasury price.....	90½¢ per ounce
	Foreign. Handy & Harman.....	90.16¢ per ounce
PLATINUM:		\$90.00-\$93.00 per ounce

## ORES AND CONCENTRATES

BERYLLIUM ORE:	10 to 12% BeO. F.o.b. mine, Colorado.....	\$35.00 per unit
CHROME ORE:	F.o.b. railroad cars eastern seaports. Long tons dry weight.	
	African (Rhodesian). 48% Cr <sub>2</sub> O <sub>3</sub> . 3 to 1 chrome-iron ratio.....	\$42.00-\$43.00
	African (Transvaal). 48% Cr <sub>2</sub> O <sub>3</sub> .....	\$34.00-\$35.00
	Turkish. 48% Cr <sub>2</sub> O <sub>3</sub> . 3 to 1 chrome-iron ratio.....	\$50.00-\$51.00
IRON ORE:	Lake Superior. Per gross ton Lower Lake Ports.	
	Mesabi, Non Bessemer, 51.5% Fe.....	\$8.30
	Mesabi, Bessemer, 51.5% Fe.....	\$8.45
	Old Range, Non Bessemer.....	\$8.55
	Old Range, Bessemer.....	\$8.70
MANGANESE ORE:	Metallurgical grade. 45 to 46% Mn. Long ton unit.....	\$1.05 to \$1.15
	Chemical grade. 80% MnO <sub>2</sub> . Per ton.....	\$60.00
	Chemical grade, domestic, 70% MnO <sub>2</sub> , F.o.b. mines.....	\$45.00
MOLYBDENUM CONCENTRATE:	90% MoS <sub>3</sub> . F.o.b. Climax, Colorado. Per pound of contained molybdenum.....	\$1.00
TUNGSTEN CONCENTRATE:	60% WO <sub>3</sub> . Per short ton unit.....	\$65.00
URANIUM ORE:	Carnotite-Roscoelite. F.o.b. purchase depot plus \$0.06 per ton mile (maximum of \$6.00), Rifle, Naturita, Uravan and Durango, Colorado; Salt Lake City and Monticello, Utah. Base price for 0.10% ore is \$1.50 per pound and ranges to \$3.50 per pound of contained U <sub>3</sub> O <sub>8</sub> plus \$0.75 per pound for each pound in excess of four pounds per short dry ton and an extra allowance of \$0.25 per pound for each pound in excess of 10 pounds. A development allowance of \$0.50 per pound is paid for all ores purchased.	
VANADIUM ORE:	Carnotite-Roscoelite. V <sub>2</sub> O <sub>5</sub> content, up to 10 pounds, in uranium ore paid for at \$0.31 per pound in ratio of 10 parts V <sub>2</sub> O <sub>5</sub> to 1 part U <sub>3</sub> O <sub>8</sub> .	

## NON-METALLIC MINERALS

BENTONITE:	Minus-200-mesh. F.o.b. Wyoming points. Per ton in carload lots.....	\$12.50
	Oil Well grade. Packed in 100 pound paper bags.....	\$14.00
FLUORSPAR:	Metallurgical grade. 70% effective CaF <sub>2</sub> content per short ton F.o.b.	
	Illinois-Kentucky mines.....	\$43.00
	Ceramic grade. Minimum CaF <sub>2</sub> content, 95%.....	\$45.00
	Acid grade. 97% CaF <sub>2</sub> .....	\$50.00
PERLITE:	Crude: F.o.b. mine per short ton.....	\$3.00 to \$5.00
	Plaster grades. Crushed and sized. F.o.b. plants per short ton.....	\$7.00 to \$9.00
	Concrete grades. Crushed and sized.....	\$6.00 to \$8.00

Quotations on metals and certain ores through the courtesy of *American Metal Market*, New York, N.Y.

Mines Company ground at Park City, Summit County, Utah, according to Paul H. Hunt, Park Utah vice president and general manager. Under the companies' joint agreement Park Utah is exploring the area from its 1700 and 1900 foot levels. Stringers were cut in work on both levels.

The Utah Tax Commission has raised the assessed value of iron ore in Utah, for tax purposes, from \$1.55 to \$4.53 per net ton. Patrick Healy, Jr., commission chairman, said that the value was reached on a basis determined on the Mesabi Range, Minnesota price, less transportation costs to Lake Erie ports.

Delbert Nebecker of Los Angeles and M. B. Wilson of Salt Lake City recently announced plans to build a 100-ton-per-day uranium-vanadium processing plant at Green River, Utah. They anticipate securing ore for the plant from the Polar Mesa district, Grand County.

*Combined Metals Reduction Company* and the *New Park Mining Company* have signed a three-year contract covering milling of New Park ore by Combined Metals. Under the terms of the contract Combined Metals will treat 9,000 tons of mixed sulphide ore per month at its Bauer, Utah, mill from New Park's *Mayflower* mine at Park City. Combined Metals will devote an entire section of Bauer plant to New Park ore. Lead concentrates produced from New Park ore will be smelted at the Toeoele, Utah, smelter of the *International Smelting and Refining Company* and zinc concentrates will be refined at the *Anaconda Copper Company's* Black Eagle, Montana, electrolytic zinc refinery. After zinc refining at Black Eagle, New Park has the option of holding or marketing its slab zinc to take maximum advantages of marketing conditions.

*American Fork Consolidated Mines* of Salt Lake City, Utah, reportedly struck silver-lead ore in its property at American Fork Canyon, five miles southwest of Park City. The ore was found when the shaft had been sunk 130 feet on the vein. A first shipment has been made from this zone and further sinking of 50 feet is expected to open a large orebody. N. J. Nielsen is vice president and manager.

A discovery of uranium and vanadium-bearing ore is said to have been made by *Western Gold Mines, Inc.*, at its *Silver Reef* property near Leeds, Utah. Engineers of the AEC and the Geological Survey are considering drilling the find.

After several years of idleness, *Eureka Standard Mining Company* reportedly has shipped some dump ore to smelters from its Tintic property.

In a raise from the 1100-foot level of the *Dixie-Apex* mine of *Kentucky-Utah Mining Company*, Salt Lake City, Utah, a copper orebody has been discovered. The raise was about 50 feet up when ore was struck and will be continued to intersection of a fissure with the *Dixie-Apex* vein. Meanwhile an application has been made to DMA for \$17,500 to explore the *Apex* vein further.

DMA is said to have approved applications for funds to the *Naildriver Mining Company* for \$40,000. The company is controlled by *Park Utah Consolidated Mines Company* and the project will be to drive an inclined drift to the old *Naildriver* orebody at the property near Park City. Another authorization, for \$55,000, went to *Combined Metals Reduction Company's* *Butterfield* mine for exploration in the Lark district.

## precipitates — SOUTHWEST

### Ore-Buying Firm Building Own Tungsten Mill

Strategic Metals Corporation, dealer in domestic and foreign ores, is erecting its own tungsten mill at 1056 Mission Road, Tucson, Arizona, to facilitate further the handling of tungsten ores from mine to consumer. The company has been buying tungsten concentrates since early this year, having become primarily interested in that metal, and now to encourage increased mining is purchasing raw ore as well as concentrates. Ore is bought from small operators in the U. S. and in foreign countries, particularly Mexico.

The company recently elected the following officers: Cordy C. Calvin, president; and Irving Friedman, vice president and treasurer. The company address is P. O. Box 849, Tucson.

### DPA Certificate for \$54,989,000 to Kaiser

Kaiser Steel Corporation reportedly has been issued a certificate of necessity by the Government for \$54,989,000 allowing rapid amortization on the cost of new pig iron facilities at Fontana and San Bernardino, California.

The Defense Production Administration has authorized the company to write off 75 percent of the plant's cost in the next five years and apply it against taxable income for that period.

### Manganese, Inc., Buys Two Kilns for Nevada Plant

Two rotary kilns, said to be the largest ever to be engineered and manufactured west of the Mississippi, will be built for Manganese, Inc., Henderson, Nevada, by Standard Steel Corporation, Los Angeles, for delivery in December. The contract was placed through Southwest Engineering Co., agents for Manganese, Inc., which is a subsidiary of Haile Mines, Inc., New York City.

The kilns, 10 feet in diameter, 150 feet long, and made of 400 tons of steel, will be installed as part of the \$2,500,000 manganese ore plant at the site of the old Three Kids mine near Henderson. Electric motor gear reducer drives power the kilns.

Construction of the 1,200-ton-daily flotation plant is under way. Part of the old Hanna electrolytic plant will be used in the expansion project. Manganese, Inc., has blocked out about 2,500,000 tons of ore on its 70 mining claims.

ARIZONA

The discovery of a deposit of pitchblende, high-grade uranium-bearing ore, within 35 miles of Tucson, Arizona, has been verified by the Tucson office of the

U. S. Bureau of Mines. According to J. B. Clemmer, chief metallurgist, the extent of the deposit cannot be determined until further work is done, but the discovery is considered a favorable prospect. The discoverers were identified as Albert Ybarra, custodian at the Pima County Courthouse, and Glenn Allen, an employee of the Grand Central Aircraft Corporation.

The Banner Mining Company has started development work at the Mineral Hill mine, a group of 38 claims in the Pima mining district of Arizona. A small crew is employed in retimbering and reconditioning the old shaft. A. B. Bowman of Tucson, Arizona, is manager. The Banner organization is headed by H. I. Grimes, 1910 First National Bank Building, Oklahoma City, Oklahoma, and has operated extensively in the Lordsburg (New Mexico) area.

C. L. Maguire of Wickenburg, Arizona, is said to have applied to the Defense Production Administration for a certificate of necessity for \$220,665 for the production of copper ores. He reportedly was eligible for \$74,500 with 75 percent certified.

The Fernstrom Operating Company has purchased a new Herman ball mill to be installed at Las Guijas mine for the milling of tungsten ore. The mill has a 25-ton capacity. Lester Fernstrom, Box 51, Ruby Star Route, Tucson, Arizona, is manager.

Herbert S. Dahlman, chief engineer for the Paul Lime Plant at Paul Spur, Arizona, announced that the firm's \$80,000 modernization program is nearing completion. A 7-by-160-foot rotary kiln for

producing calcium-oxide (lime) has been installed. Feed rock will be crushed by a new "Dixie-Mogul" hammermill with a capacity of 175 tons per hour passing one and a half inch. The installation is the second in two years. In conjunction with the two rotaries, eight-vertical-shaft kilns are in production and anticipated tonnage is 8,000 tons monthly. Dahlman had been operator of the Chubbuck Lime Company of California and mechanical engineer and vice president of Omega Metals Company, which produces and mills copper and zinc from two Arizona mines.

F. A. Sitton, Inc., is producing about 1,200 tons of uranium and vanadium ore monthly from its holdings on the Navajo Indian Reservation in northeastern Arizona. Approximately 35 men, mostly Navajo Indians, are employed on a two-shaft basis, with development work proceeding in three tunnel openings. R. O. Dulaney of Cortez, Colorado, is president; G. R. Kennedy, manager; and William Grimer, superintendent.

Heavy capital expenditures were required to convert the Ray Mines Division of Kennecott Copper Corporation from an underground to an openpit operation. According to J. C. Kinneer, vice president, these expenditures will cover the installation of an openpit crushing plant, remodeling of the old crushing plant, the purchase of shovels, trucks and auxiliary equipment for operation of the pit, and the expansion of the milling facilities from 10,000 to 15,000 tons of ore a day. In 1950 a total of 3,056,425 tons of ore was mined and milled by the Ray division. Of this amount, 1,628,921 tons was produced by openpit



### ATWOOD COPPER LOADED FOR SHIPMENT

Once again the scene of daily train movements is the Atwood spur of the Valedon branch of the Southern Pacific Railroad Company, Hidalgo County, New Mexico. Siliceous copper-silver-gold ore is loaded at the ramp pictured here for shipment to the El Paso, Texas, smelter of the American Smelting & Refining Company. Shipments will be increased as additional stopes are brought into production above the recently developed 750-foot level of the Atwood mine. Mining is done by sub-lessee Ira L. Moseley. The mine is operated by S. A. and C. H. McIntosh of Lordsburg, as joint tenants.



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mining and 1,427,504 tons by underground mining. Current production from the openpit is in excess of 8,000 tons daily. It is expected that the final construction work necessary to bring the mine's full productive capacity to 15,000 tons a day from pit and underground will be completed this fall. A. P. Morris, Ray, Arizona, is general manager.

United Mine Operators, Inc., has made its initial carload shipment of copper ore from the *Unida* mine. The shipment went to the Magma smelter at Superior. The ore was trucked from the mine, on the Constellation Road, to the Santa Fe Railroad siding at Wickenburg, a distance of approximately 11 miles. The truck is an International with a short wheel base for easier negotiation of road curves, and is equipped with a special Allison-steel dump body of 10-ton capacity. Lynn Hersey, Box 1115, Miami, Arizona, is consulting engineer, and Ernest Sturrock, Box 836, Wickenburg, is mine superintendent. Eight men compose the mine crew.

Driving of the 1,200-foot tunnel at the *Mount Union* mine, near Prescott, Arizona, has been completed by the Reorganized *Silver King Divide Mining Company*. The tunnel is six by eight feet and is equipped with 24-pound rail for working purposes. It cut into the old mine workings at a depth of 515 feet below the collar of the old shaft. At present the company is cutting a working station at the 500-foot level, and from there deeper work will be done on the vein along its strike to the north end of the property. Ore values are in gold, silver, lead and zinc. Nolan H. Deasy, 243 South Washington, is manager.

Work has been resumed by *Tennessee Metals Corporation*, Kingman, Arizona, in both the *Summit* mine and the *Tennessee* mine, according to Ralph R. Langley, president. One crew is finishing the *Summit* crosscut, and another is driving a crosscut on the seventh level of the *Tennessee*. In addition, the *Tennessee* mill is being reconditioned to handle both company and custom ores.

The *Metate Asbestos Corporation* was organized January 15, 1951 to develop a group of five claims on the San Carlos Indian Reservation in Gila County, Arizona. There are five stockholders: C. R. Neal, Jr., Joplin, Missouri, president; Jack L. Neal, Globe, Arizona, vice president and mine superintendent; R. C. McNabb, secretary-treasurer; Charles Ross Neal, director; and R. A. McNabb, director. The company has shipped one 30-ton car of asbestos to the *Eagle Picher Company* at Joplin; one 17-ton car has gone to the *Western Chemical Company* of Los Angeles, California; and a 30-ton order is being readied for the *Southern Asbestos Company* of Charlotte, N. C. The property is developed by two adits and there is a crew of 10 men underground and two in the mill.



Ore strikes recently reported include that of gold found in the *Jacobson* mine in the Garden Valley district near Placerville, California. The *Jacobson* adjoins the *Cincinnati* mine and is leased by Furn Crabtree and Carl Simpson of Kel-

sey. A tungsten-gold strike has been made at the *Early* mine, owned by Robert and Edyth Jackson and being worked by Harry Odgers of Midpines, Mariposa County, and I. R. Toye. Operations are planned here. Another tungsten strike has been made in the mountains south of Banning near the *Twin Pines Ranch*.

The Darwin mill of the *Anaconda Copper Mining Company*, Inyo County, California, will be enlarged to treat 135 tons of oxide lead ore per day. Its present capacity is 300 tons per day of lead-zinc sulphide ore. S. K. Droubay is manager of operations at Darwin.

A 75 hp. compressor has been installed by *Willow Valley Mines* at the *Bellefontaine* mine near Nevada City, California, and will provide compressed air for that mine and the *St. Louis* properties. Development work is in progress from the 400-foot level of the *Bellefontaine* shaft toward the *St. Louis* and will open up the *Le Compton* and *Posey* claims as well. When development is completed the company will probably lease parts of the property to other operators.

Leonard N. Gould and Charles A. Smith of Nevada City have leased six claims of the lower *Scanlon* mine group in the Indian Hill mining district near Downieville, California. By hydraulic washing, a trench about 16 feet deep, 80 feet long and 30 feet wide has been cut in a gold-bearing ledge. Gould and Smith next will drive a 35-foot adit in the side of the hill and then will drive parallel to the ledge to determine the extent of the orebody. The assays have increased with value as work has progressed and show indications of a favorable operation.

While driving an exploratory crosscut from an old 250-foot-deep shaft in the *Big Indian* mine, a large manganese deposit was opened by lessees. The mine, four miles west of Randsburg, California, is owned by Elmo and William Billington of Bakersfield. As a result of the find, operations were resumed in the mine and a shipment of 600 tons of ore will soon be made to *Combined Metals Reduction Company's* Henderson, Nevada, plant.

*Blue Ridge Gold Mines Company* has reportedly taken a four-year lease on four claims of the *Tip Top* tungsten property in the Mono-Inyo county tungsten region. *Blue Ridge* runs the *Sugar Hill* gold mine in Siskiyou County. According to Gerald B. Hartley, manager of the company, a large surface orebody has been exposed and a 30-foot shaft has been sunk, with values increasing at depth. An openpit operation is planned with a production of about 50 tons daily.

Equipment is being installed and preparations made to openpit-mine tungsten deposits in the *Tungsten City* district near Bishop, California, by Don Burgner of Reno. He purchased the *Tungsten Blue* mine, now named the *Shamrock*, consisting of seven claims. The mine was worked during World War II.

The *Volo Mining Company*, Placerville, California, is said to be planning the installation of a carbon desorption unit at its gold recovery mill. The company's mine is at present equipped with a mill of 400 to 500 tons daily capacity. Ore is mined by power shovel from a wide dike.

Vincent LaSage of Los Angeles is exploring a 600-acre lead-zinc-copper prop-

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erty, owned by Luke Williams and Mrs. Paul Rossier in Nevada County, between Cottage Hill and Higgins Corners. Three veins have been traced across the property. One 40-foot shaft exists and is being pumped out. Another shaft will be sunk on one of the veins.

Regular gold production is coming from the Hazel Creek Mining Company's operations in the Six Pads area near Placerville, California. The property was located about three years ago in a cinder region east of the Mother Lode. A mill and flotation plant of 20 tons daily capacity was installed recently.



Nevada Massachusetts Company, operator of tungsten mines and a gravity-flotation mill at Tunstun, Pershing County, Nevada, has received an accelerated tax amortization certificate according to the Defense Production Administration. The certificate permits five-year depreciation of the \$125,000 cost of facilities to increase tungsten output. New crusher equipment and additional table capacity will be installed to accomplish the increase. Current production and mill throughput is at the rate of 400 tons of ore per day, mined from the Stant-Humboldt and Sutton underground mines and four surface workings.

The H. K. Ferguson Company has been awarded the approximately \$10,000,000 contract to convert National Lead Company's three units at the Basic Magnesium Plant, Henderson, Nevada, into a titanium production plant, according to Roland P. Smith, manager of National Lead's titanium division. Production is scheduled to begin late in the spring of 1952.

The Big Creek Mining & Milling Company has bought machinery for a 30-ton mill to be installed at Austin, Nevada. The company is developing and opening mining anthracite ore at properties near Austin. About 1,200 tons of milling grade ore exists in dumps at the mine.

H. L. Hazen, former manager of the Central Consack mill at Virginia City, Nevada, now closed down, and S. L. Rawlings, a director of the San Luis Mining Company, have joined forces to operate a tungsten property on the hill above the Gatchell Mine in Humboldt County, Nevada. They reportedly plan to mine by power shovel and to truck the ore to Gatchell's tungsten mill, less than five miles away. The deposit on their property is said to be fairly extensive.

Abe Laird, one of the owners of the Bay State tungsten mine, a few miles north of Highway 50, about 14 miles east of Eureka, Nevada, is making preparations to open the property. Other tungsten mining plans have been made by George Without of Tonopah, who is developing an openpit 85 miles northeast of Tonopah; and Art Reggies and Robert Rankson, who are developing a high-grade tungsten ledge on the Only Chance mine property in the Cherry Creek mining district of White Pine County. They are said to be mining ore averaging between 5 and 10 per cent WO<sub>3</sub>.

In the Palmetto mining district of Esmeralda County, Nevada, Leslie G. Allen of Yuba City, California, and George Bailey of Oroville, California, reportedly have taken a 10-year lease to drill and

test some or all ten claims for information which may lead to a large developing operation. The property, owned by Peter Kelly of Goldfield, Nevada, and Ed Parker of Coaldale, consists of the Greenwood, Buck Horn, Buck Horn Extension, David, Parsons, Remona, S. Rainona Extension, Pole Line, Grandpa, and Grandpa claims, containing gold-bearing gravel believed to be amenable to large-scale dredging operations.

Operations have begun at Basic Refractories, Inc.'s new \$2,250,000 refractory plant at Gabbs, Nevada. It is the first new magnesia refractories plant to be put in operation since the Korean War began.

Development of the Yerington copper prospect by Anaconda Copper Mining Company through the International Smelting and Refining Company, its subsidiary, is under consideration. If the plan goes through, it will be an openpit operation, 800 or more men would be employed, a whole new town would be built near Yerington, a sulphur deposit would be opened about 20 miles west in conjunction with the operation, and about 2,000,000 tons of ore-bearing material would be mined yearly. An estimated 20,000,000 tons of ore exist, half of which is oxides and half sulphides, and all very low grade. Anaconda has applied to Washington for amortization consideration and an escalator clause in the purchase of the copper by the government.

Magnus Peterson is shipping gold ore to the McGill, Nevada, smelter of Kennecott Copper Corporation from a strike only recently discovered in his Old Compad mine, 50 miles east of Tonopah, near the old mining camp of Tybo. The vein, which runs north-south, has been widening with depth and high values are continuing. Peterson has installed a compressor at the property and has started sinking a 40- to 75-foot shaft. Surface exploratory work has been done over a distance of 2,000 feet; one trial shipment has been made and others will be made as development continues.

The first lead-zinc ore from the 500-foot level of the Copper Canyon Mines Company property near Battle Mountain, Nevada, was mined in the middle of June, concentrated at the reconditioned mill at the property, the lead concentrate going to the International Smelting & Refining Co., Utah, plant and the zinc to American Zinc Company's Texas smelter. The company formerly recovered lead only, and changed its milling circuit to handle zinc also.

Dutch Flat Mines has been incorporated and will work a group of 29 gold-bearing claims in the Dutch Flat region of Paradise Valley near Wadsworth, Nevada. The company reportedly is capitalized at \$2,000,000. T. A. Cowan is president and M. G. White is secretary-treasurer. Another company, Dutch Flat Placer Mining Company, is said to be working nearby ground with a power shovel and washing plant.

James O. Greenan of Reno, Nevada, and associates have taken over the old Downsville lead mine in northern Nye County, Nevada, and have trucked the first carload of zinc-lead carbonate ore to Luning, on the Southern Pacific Railroad's branch line. The returns from this shipment will give the information needed for future operation and plant erection. The Downsville is one of the oldest lead properties in Nevada but had been idle for many years.



Columet and Hecla Consolidated Copper Company is said to be considering development of the Bill Saunders claims adjoining ground of Columet's subsidiary, Tonopah Development Company, north of Tonopah, Nevada. In the past few years Columet has drilled eight holes and within the past few months American Smelting and Refining Company has drilled four holes in the area. Results of the drilling while not spectacular may warrant further development. M. A. Diskin of Reno is Columet attorney in Nevada.

Charles Homnack, Jean Gates and Carl Early of Mina, Nevada, are said to be building a 100-ton-per-day mill near the old Columbus mining camp in Mineral County. The men expect to mill gold-silver-lead ore from mines in the Condehata, Marietta and Columbus regions.

## NEW MEXICO

The United States Trench Company has announced that a million-dollar-plus construction program will be started at once at its Carlsbad, New Mexico, refinery. A contract for the work has been given to C. C. Moore and Company of San Francisco.

Nine lead-zinc and three fluorapatite operations were begun in New Mexico during the first few weeks of June. According to New Mexico's state mine inspector,

John Garcia, the new work is centered around Silver City and Truth or Consequences.

Halls Mines, Inc., of New York, is said to be spending \$100,000 to hunt for tungsten on Iron Mountain, 10 miles east of Silver City, New Mexico. Temporary roads are being constructed and samples tested by engineers.

A big gold strike has been reported made in the mountains south of Magdalena, New Mexico. The find was said to be on a manganese claim held by Lee Logan and Buck Mangum, who were working it for the government. Frank Robinson, mining engineer, and graduate of the New Mexico School of Mines, made the strike. The extent of the deposit is about 15 miles, width is unknown.

International Minerals & Chemical Company will extend its mining operations into the area to be served by the new No. 3 and No. 4 shafts by driving a 6,000-foot crosscut from the No. 2 shaft back to the No. 1. After that No. 3 shaft will be connected to No. 4. The company operates at Carlsbad, New Mexico.

New Mexico Institute of Mining and Technology recently received two new concentrating machines for use in ore separation work. They will be used for laboratory instruction and demonstration. The HMS unit is designed to treat ore at a rate of up to 500 pounds per hour and will treat material as coarse as one inch in diameter. The laboratory magnetic separator also is a continuous test unit.



Texas International Manganese Corporation will begin construction of a manganese concentration plant in Brownsville, Texas, within 90 days, if necessary approvals are obtained from Government agencies. Allan W. Hand, the firm's capital representative, said the plant's production of manganese is expected to reach several thousand tons monthly.

Capacity of the Moss Bluff sulphur mine in Liberty County, Texas, is to be increased by 50 percent by Texas Gulf Sulphur Company. Application for the construction has been submitted and auxiliary equipment ordered. It has also been disclosed that subsidiaries of the company are carrying on exploration work to find commercial deposits of sulphur. The company's sulphur production has been increased from 2,000,000 to 3,000,000 tons a year in the past two years.

According to the Defense Production Administration, The Dow Chemical Company has applied and received certification of necessity for accelerated tax amortization as follows for its Freeport, Texas, properties: \$2,200,000 for magnesium ingots, all eligible and 50 percent certified; \$130,000 for magnesium ingots, all eligible and 50 percent certified; \$130,000 for magnesium metal ingots, all eligible and 50 percent certified.

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- 1-15'x28" Faciles, all steel
- 1-8'x15" Farrell Blake
- 1-8'x36" Cedar Rapids
- 1-12'x24" Telemobil

#### TUGGER HOISTS

- 1-Dillon Box #3, 1,000 lb. tugger
- 1-Ingersoll Rand also RML 202 2 drum all tugger
- 1-Ingersoll Rand #1099926 3 drum slusher
- 1-Ingersoll Rand, Model BHC, all tugger
- 1-Ingersoll Rand, 2 drum, size SMH OH electric tugger
- 2-Sullivan, size RH electric tuggers
- 1-Ingersoll Rand, size 107, electric tugger
- 1-Sullivan, Model B 211, 2 drum, electric tugger
- 1-Ingersoll Rand new size 20 MVM 210, 2 drum, electric slusher hoist
- 2-7 1/2 HP Sullivan electric tuggers
- 2-7 1/2 HP Sullivan double drum electric tuggers

#### FILTERS

- 1-4 1-disc Oliver Vatted continuous filter
- 1-4'x6" Morse Bros. continuous drum filter
- 2-8'x12" Elmer continuous drum filter
- 1-36" Merrill triangular leaf filter press
- 1-212 Sweetland 36 leaf filter press

#### BALL AND ROD MILLS

- 3-3'x2" Marcy ball mill
- 1-4'x4" Standard ball mill
- 1-3'x4" Colorado Iron Works ball mill
- 2-8'x36" Hardinge conical ball mill
- 1-8'x72" Hardinge conical pebble mill
- 1-24" Marcy ball mill



#### LOCOMOTIVES

- 1-1 1/2 ton Mancha type B Little Trimmer, 24 gauge
- 1-2 1/2 ton Whitecomb Battery Locomotive, 24 gauge
- 2-7 ton General Electric Battery Locomotives, 36 gauge
- 2-8 ton General Electric Battery Locomotives, 36 gauge
- 4-10 ton Atlas Battery Locomotives, 36 gauge
- 1-3 ton Ruth Gasoline Locomotive, 18 gauge
- 1-4 ton Whitecomb Gasoline Locomotive, 24 gauge
- 1-8 ton Goodwin Trolley Locomotive

#### SAND PUMP

- 1-1 Wilfley Sand Pump
- 2-2 Wilfley Sand Pumps
- 1-2 Denver Vertical Sand Pump
- 2-2 Telluride Sand Pumps
- 1-2 1/2 Traylor Sand Pump
- 1-3 Allen Sherman-Hall rubber head Hydro-seal
- 1-3 Telluride Sand Pump
- 1-3 Wilfley Sand Pump
- 1-4 Denver Vertical Sand Pump

- 1-4 Allen Sherman-Hall Hydro-seal
- 2-4 Wilfley Sand Pumps

#### COMPRESSORS

- 1-5 & 1/4 Ingersoll Rand 50 CFM vertical
- 1-6x5" Worthington 80 CFM horizontal
- 1-6x5" Gardner-90 CFM vertical
- 1-8 1/2 x 4 1/2" Chicago Pneumatic 150 CFM vertical
- 1-7 & 5/8 x 5" Gardner Denver 156 CFM vertical
- 1-10 1/2 x 4 1/2" Rix 172 CFM vertical
- 1-8x8" Chicago Pneumatic 173 CFM horizontal
- 1-12-10" Ingersoll Rand 179 CFM horizontal
- 1-12 & 5/8 x 10" Ingersoll Rand 283 CFM horizontal
- 1-7 & 5/8 x 5" Gardner Denver 300 CFM vertical
- 1-9 1/2 x 5 1/2" Chicago Pneumatic 302 CFM vertical
- 1-11 & 7/8 x 12" Ingersoll Rand 447 CFM horizontal
- 1-9 1/2 x 6 1/2" Gardner Denver 527 CFM vertical
- 1-14x12 Ingersoll Rand 528 CFM horizontal
- 1-11 & 8 1/2 x 10" Sullivan 537 CFM angle compound
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- 2—5 KVA Wagner Transformers 1100-2200 1110-110 volts
- 1—SKW G. E. Transformer 440-220 110 volts.

### CLASSIFIERS

- 1—6"x22' Dorr Type Duplex Rake Classifier
- 1—60"x23' Denver Equipment Simplex Crossflow, Spiral Classifier
- 1—12"x12'6" Screw Classifier—motorized.

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- 1—D-4400 Caterpillar V-belted to a 30 KVA 220 volt Fairbanks-Morse AC Generator, complete with switchboard

### FLOTATION MACHINES

- 2—No. 24 Denver "Sub-A" with wood tanks, rubber impellers

### CRUSHERS

- 1—9"x40" Austin-Western
- 1—10"x20" Allis-Chalmers Blake
- 1—8"x10" Blake
- 1—7"x10" McClair—Jaw

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- 1—#21½ Vulcan Single Drum, direct geared to a U-6 International Gas Power Unit
- 1—#6 Vulcan, single drum
- 1—Box I. Wks. Single Drum, direct geared to a 15 HP Slip-ring Motor
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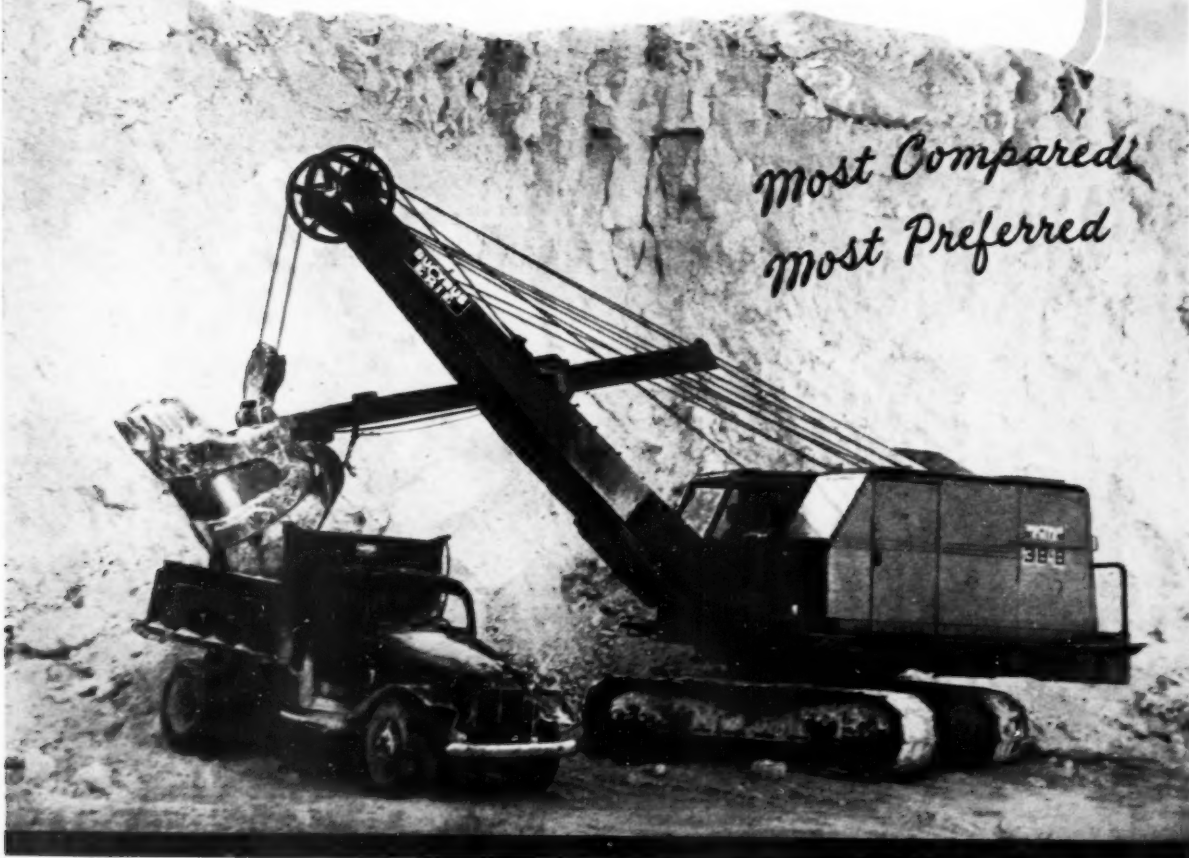
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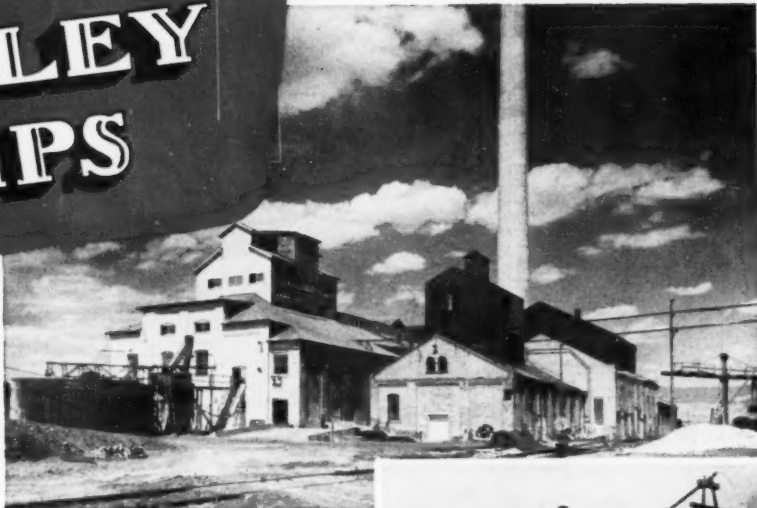
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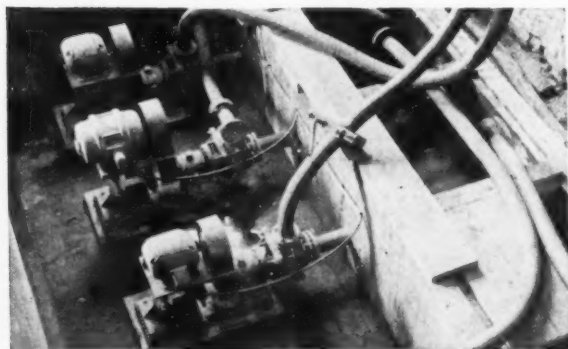
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